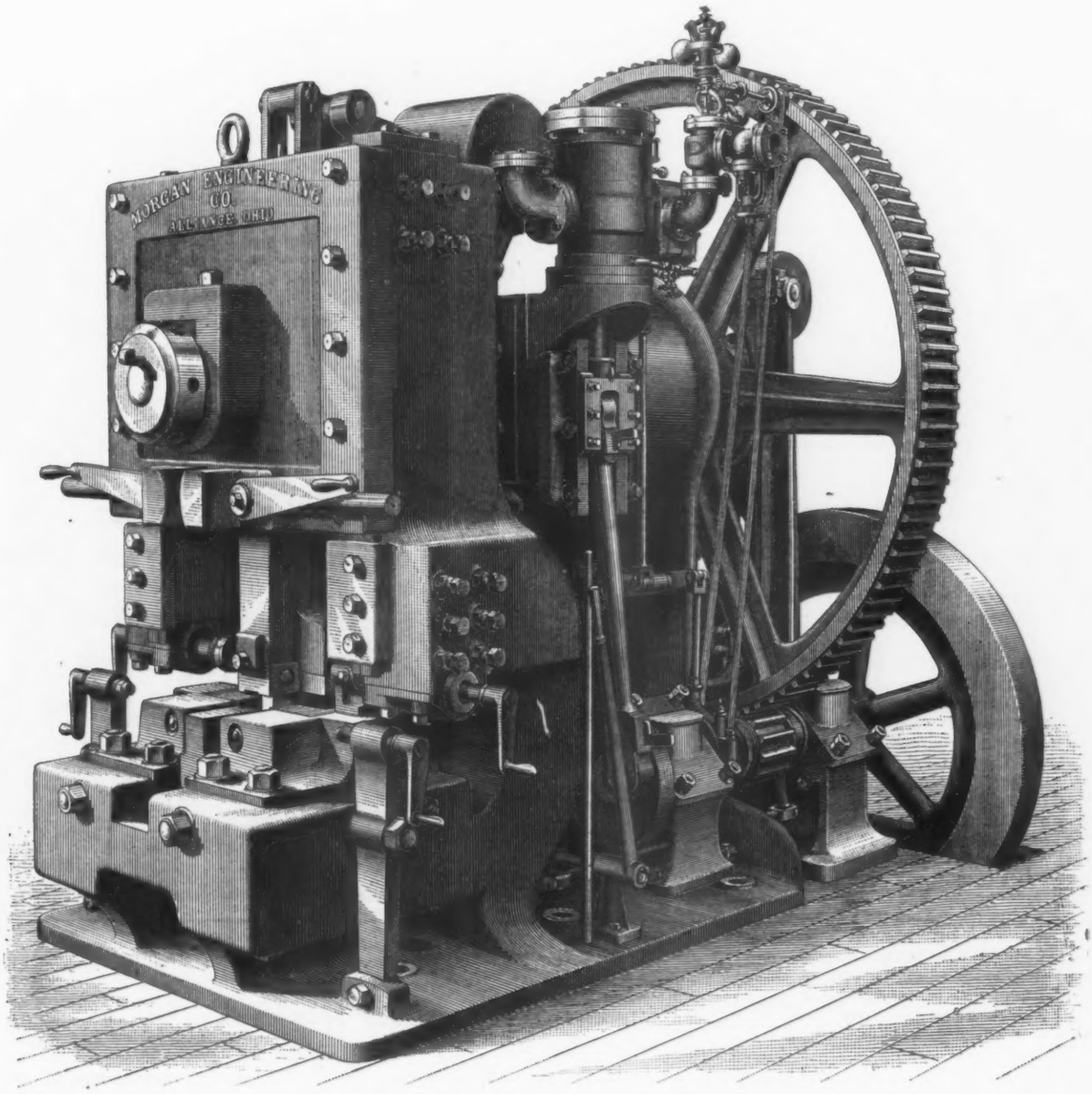
THE IRON AGE

THURSDAY, OCTOBER 24, 1889.

The Kennedy Beam-End Shear.

For some time there has been at work at the Homestead Steel Works of Carnegie, Phipps & Co., Limited, a machine for cutting the ends of I-beams, designed by Julian Kennedy, who is now chief engineer of the Latrobe Steel Works. The shear was built by the Morgan Engineering Company, of Alliance, Ohio. The special object of the machine is to cut the ends of I-beams so that they may be fitted against the sides of other I-beams when used in the formation of structural work. Figs. 4 and 5 represent the plan and an elevation of a beam sheared in this manner, Fig. 5 showing how one beam fits into a second, which is shown in section. It is necessary, therefore, to cut away the flanges of the beam at a short distance from the end so as to leave a projecting portion of the web which shall fit against the side of the web of the second beam. In order to accommodate for the slight inclination of the inner sides of the beam against which it abuts, it is necessary to bevel the lateral edges of the web of the cut portion of the beam. Hitherto no machinery has been devised which has been suitable for cutting the ends of I-beams of different sizes without change of the dies, and it was to supply this want that Mr. Kennedy designed the machine which we illustrate.

Attached to the end of the main shaft, shown in Fig. 3, is an eccentric provided with an incasing box, which is arranged in a plunger set in upward guide-ways, shown in dotted lines in Fig. 2. The plunger is counterweighted in the usual manner by a counterweight-lever, which has its fulcrum between standards at the top of the machine and is provided at its front end with links, which are connected with the plunger. These are clearly shown in Figs. 2 and 3 and are indicated in the general perspective view. At the lower end of this plunger are the knives. Of these there are four, two for cutting the flanges of the beam and two for cutting the web. They are arranged in pairs at the sides of the plunger, which occupies the central position in Fig. 2, there being on each side a web-knife and a flange-knife. The position of the flange-knife is clearly shown as it appears on the beam in place on the left-hand side of the engraving, while one of the web-knives is cut deeply into the web of a beam lying in position in the right-hand side of the machine. The bed-knives are L-shaped, each having three cutting-edges. The operation of the machine in cutting I-beams is as follows: The beam is fed in edgewise from the front of the machine, as shown at the left side of Fig. 2, so that the flange to be cut shall rest on the knife-holder with that portion of it intended to be cut away directly over the cutting-edges. Stock-bolts, the position of which is shown at about one-half the hight of the beam, determine the proper distance of feed of it into the machine. As soon as it is in its proper position the beam is clamped against the side of the flange by means of a screw shown in the engraving



THE KENNEDY BEAM-END SHEAR

and operated by hand-lever. The main shaft of the machine for rotating depresses the plunger and causes the knives to act. The beam is reversed and the next descent of the plunger cuts out the second flange in the same way.

The beam is then transferred to the other side of the machine, and after having been placed on the feed-knife holder is held in place over the blades of the knife by a screw. Then the beam is turned over on its side and placed with a web resting on either side of the holders, the beam being held in position by means of a set-screw placed below the other screw, which forces the inner flange against the side of the upward block or stop at the middle of the machine, thus clamping the beam tightly in place. When the beam has thus been adjusted, the descent of the knife cuts the projecting end of the web with an inclined or beveled cut. Mounted on the same frame is the engine which furnishes the power, being 12 x 12 inches, driving through the medium of gearing 1 to 10 the 10-inch cam-shaft. The stroke of the shear is 2¼ inches.

The Department of State is officially informed that a law has been enacted by Chili, to take effect four months from August 30, 1889, abolishing import duties on machines and tools for the use of agriculture, mining, trades and industries; pipes or tubes composed of copper, bronze or iron, galvanized or ungalvanized knees, joints, Ts and other such necessary articles; iron or steel wire, galvanized or ungalvanized, up to the No. 14 inclusive, and copper wire or insulating composition for transmission of electric currents; telephonic and telegraphic instruments, insulators, iron or steel posts and other special necessaries for telegraphs and telephones; the material of iron or steel for the permanent way of steam or horse railways and for portable railways; wheels, axles and felloes of iron or steel for railways and the cars for portable railways; iron in plates.

The *Electrical World* has published a carefully-compiled table, based upon original information supplied by the local companies themselves, of the extent and capacity of the electrical railways of the country. The table shows that there are now running or under contract no fewer than 179 roads and extensions of roads in 127 towns and cities, operating 1884 cars over 1260.3 miles of track at the close of 1889, whereas at the close of 1885 there was practically but one electric road in America. The trackage to-day is enough to reach from New York to St. Louis, or to constitute a double-tracked road from one end of Great Britain to the other, and the rolling-stock would carry as many passengers as that of any first-class trunk line. The importance of these figures cannot be gainsaid or decried.

The Adams & Adams Mfg. Company, whose offices and salesrooms are at 278 and 280 East Madison street, Chicago, have recently started a factory at 103 and 105 South Canal street for the manufacture of paints and colors, bronzes, stains, &c. Having their own appliances, they are thus able to control the mixtures of their paints and are prepared to furnish precisely what thair customers desire. When an order is given, the composition of the batch is at once placed on record and carefully preserved, so that if desired it can be duplicated years afterward. Every factory order-blank gives the number of the batch, the page on which it is entered and the name and address of the person ordering it, preserving the record throughout. Painters' supplies of all kinds are carried in stock, together with paints and colors.

Welding by Electricity.

At a recent meeting of the British Iron and Steel Institute W. C. Fish, of Boston, Mass., read a paper on the "Thomson Electric Welding Process," from which we take the following:

The requisites of an electric welding plant, generally speaking, are:

1. Apparatus for the production of a suitable current, with means for quickly and exactly regulating the current. The current for welding may be either continuous or alternating in direction. The employment of the alternating current offers certain electrical advantages in the production of a sufficient current strength and in the transmission of energy to a distance from the source of supply and is that usually employed.

2. Clamps which shall hold the pieces to be welded in correct relative position and which shall be relatively movable in such a manner that the pieces may be forced together when heated.

3. A method for permitting the welding current to enter the pieces without loss of energy. This is usually accomplished by causing the movable clamps which hold the pieces to become a portion of the circuit, and from their ample contact, both with the pieces and the remainder of the circuit, to offer no appreciable resistance to the current flow.

4. A manner of obtaining a suitable pressure which shall force the pieces together during the operation of welding.

The last three considerations relate chiefly to simple mechanical details and are easily obtained. With our present knowledge relating to the transfer of heat energy into electric energy, a welding current—that is, one of great volume—is best produced by the three following methods:

1. The employment of secondary or storage batteries. This method is scarcely comparable with the two which follow, though it might be used to advantage in certain special cases and particularly where the existing steam plant is of sufficient power. In this case energy could be stored in the batteries and drawn upon when sufficient is accumulated.

2. A dynamo of extremely low armature resistance furnishes current directly to the weld. The weld, however, must be near to the dynamo, else, unless cumbersome and expensive leads be employed, the loss of energy in the conduction of the current would be excessive. In practice, the clamps carrying the pieces to be welded are placed directly above the dynamo on a suitable table. This system is simple and economical, but necessitates the carrying of the "work" to the dynamo.

3. The employment of an alternating current dynamo and a transformer. The function of the transformer is to transform, through the medium of a magnetic circuit, the comparatively high electric pressure and small current produced by the dynamo into a current of comparatively great volume but of low pressure, which current shall be applied to the weld. Since, by this system, we can carry the small current produced by the dynamo to any desired

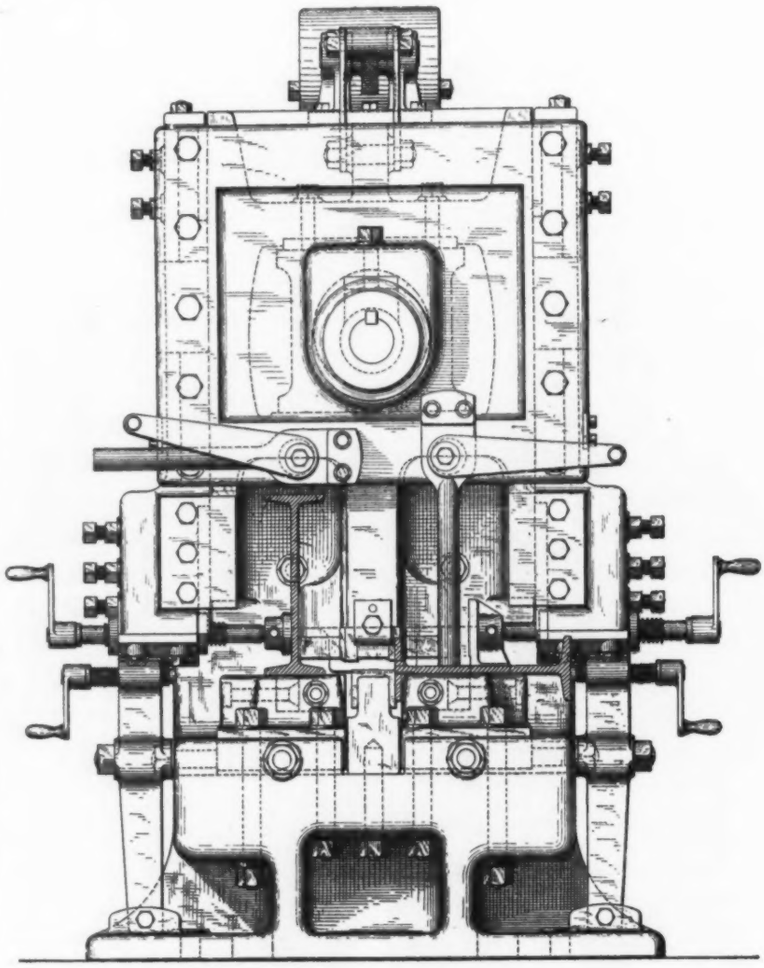


Fig. 2.—Front Elevation.

THE KENNEDY BEAM-SHEAR.

spot with little loss of energy and through conductors of small cross-sectional area, and there obtain a current of the desired magnitude, this method is the most flexible and useful of the three.

Placing our dynamo near any suitable source of mechanical energy, the welding may be done at a distance of a mile or more, if need be. The circuit of the transformer in which the heavy welding current is produced usually consists of a single turn of heavy copper bar, terminating in the movable clamps which carry the pieces to be welded. As we have already seen, the electric weld is generally made by the passage of a suitable current through the pieces to be welded and the consequent production of heat at their point of abutment, combined with the application of pressure, forcing the pieces together. The different fluxes employed in the electric process are similar to those used in the ordinary methods of welding and brazing. The pieces in some cases are slightly rounded at the ends before welding, both to increase the localization of heat, and to insure the thorough fluxing of the metal and the expulsion from the weld, upon the application of pressure, of whatever combinations of the flux and metal and other impurities that may be present.

In addition to the ordinary method of determining the welding heat—namely, the color of the metal—the operator of the welding process is also guided by the resistance to compression which the pieces exert when subjected to pressure. With a well-known grade of steel, for example, one might make the weld with eyes closed, relying entirely for the determination of the welding heat upon the "feeling" of the metal when under pressure.

The pressure applied generally produces at the weld an enlarged cross-sectional area. Through different combinations of heat and pressure this enlargement is somewhat under the control of the operator, and those metals—such as iron and steel—which are not "hot-short" can be reduced by hammering while the pieces are hot. Judicious hammering at the weld, particularly with the harder grades of cast-steel, is often advantageous on account of its refining tendency. The fiber of wrought-iron can also be restored by hammering, though as a rule the continuity of the fiber is but little impaired through welding.

Some metals, such as copper and brass, weld at a temperature nearly equal to that of fusion, and have also a very limited range of temperature within which the weld can be made. In welding metals of this nature the tension of a spring may be nicely adjusted to produce the necessary pressure to give the desired approach of the pieces at exactly the proper temperature, and this done to automatically shut off the current from the weld.

Another advantageous result of the simultaneous application of pressure and heat is the slightly greater permissible range of temperature within which the weld can be made and the consequent decrease of danger of burning the metal. Thus the welding temperature of certain classes of steel can be slightly reduced below that ascribed to the given metal in the smithy by the substitution of pressure for temperature. The following figures, taken at random, give a few results of tests made on the tensile strength of welds:

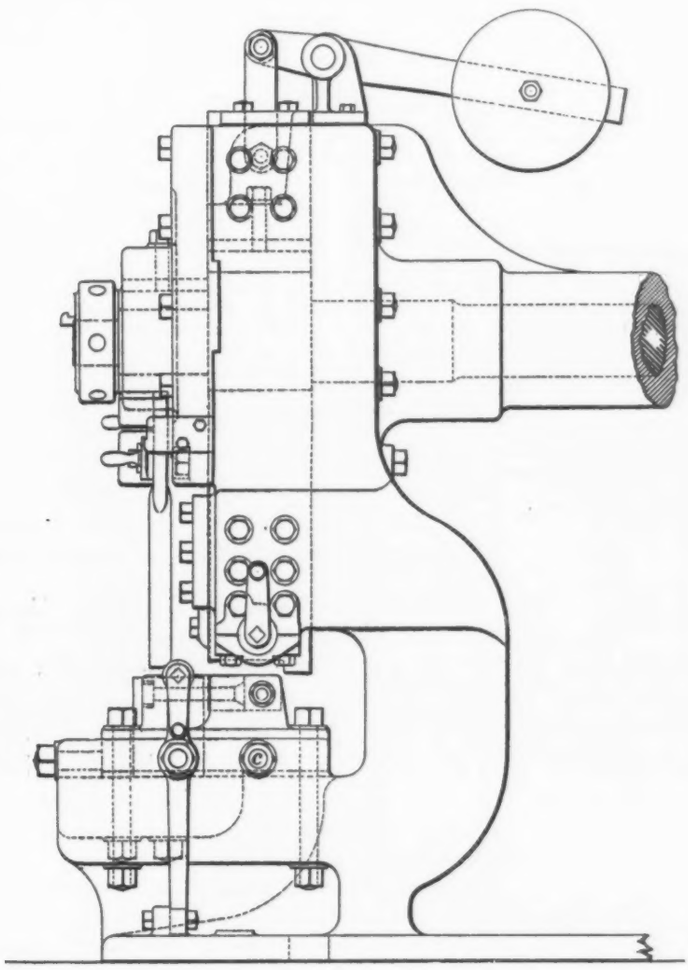


Fig. 3.—Side Elevation.

THE KENNEDY BEAM-SHEAR.

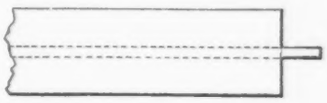


Fig. 4.—Plan of Sheared Beam.

Material.	Breaking strength per sq. in.	Position of fracture.
	Pounds.	
Wrought-iron...	53,110	1.7 in. from weld.
Cast-steel.....	81,000	At weld.
Bessemer steel...	59,584	At weld.
Copper (hard-drawn)	31,830	At weld.
Copper (hard drawn).....	32,480	¾ inch from weld.
Brass.....	40,820	At weld.
Brass.....	47,730	¾ inch from weld.
Steel and German silver.....	40,410	At weld.
Cast-steel and wrought-iron..	52,130	3 inches from weld in the iron.
Brass and wrought-iron.....	33,550	At weld.

Generally speaking, in the welding of the ordinary commercial metals, after the characteristics of the metal and the knowledge of the requirements for its welding have been gained by experimenting, a tensile strength at the weld of 90 per cent. of the strength of the unwelded metal is obtainable.

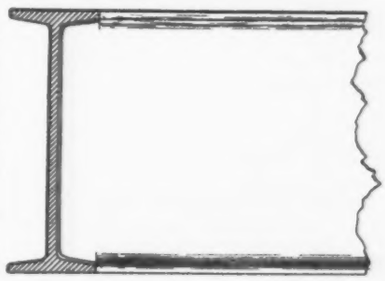


Fig. 5.—Elevation of Sheared Beam.

The time of welding varies with the conditions under which the weld is made. Thus, but only within limits, a comparatively large expenditure of electric energy for a short time is equivalent, for welding, to a smaller expenditure of energy during a longer time. The quicker a weld is made, however, the more economical it is, since there is less time for the loss of energy through the conduction and radiation of heat. Determinations of the power and time required for welding give somewhat empirical results, owing to the indeterminable effects of conduction and radiation of heat, and other factors more or less changeable with different sizes and metals. For the same reasons no general statement can be given of the required current density per square inch.

From many tests upon the time and current required for welding iron of varying sizes, mention may be made of the following approximate figures, which are also closely applicable to steel:

Ampères per square inch required.	Time of weld. Seconds.	Product.
9,500	40	380,000
12,000	30	360,000
15,000	20	300,000

The power required per square inch of material in the last case, for example, the material being round iron of ½ inch in diameter, is the product of 15,000 and 1.16 (the number of units of electrical pressure or volts in the welding circuit), giving 17,400 volt-ampères, the equivalent of 23.2 horse-power. Assuming the efficiency of the electrical apparatus to be 85 per cent., we obtain 27.3 horse-power as that to be applied to the belt of the dynamo. The actual power required for the ½-inch bar itself is, if we keep our same imagined efficiency of electrical apparatus, 5.36 horse-power.

It may be of interest to mention the possibility of electric riveting, which has already been accomplished on a small scale and is found to be a perfectly practical process. The cold rivet is placed in the rivet-hole and electrically heated to the proper temperature. The heating of a ½-inch rivet of 2 or 3 inches in length would occupy probably about 20 or 30 seconds. As the plate itself becomes somewhat heated in the immediate vicinity of the rivet-hole there is a partial weld made between the rivet-head and the plate.

The Lead-Ore Decision.

The Secretary of the Treasury has rendered the following decision regarding the proper classification of lead and silver ores :

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
WASHINGTON, October 18, 1889.

To the Collectors and other officers of the Customs :

I have given due consideration to the arguments, both written and oral, submitted at and subsequent to the hearing at this Department in May last upon the question of proper classification of ores containing both lead and silver, associated with other substances in variable quantities and generally known as lead-silver ores or as the argentiferous ores imported from Mexico. Upon examination I find that the decisions and practice of this Department have been uniform for a number of years. It was held by the Department, under the decision dated January 14, 1880 (S. S. 4391), with regard to the classification of certain ore imported at Eagle Pass from the Sierra Majada mines in Mexico, and which was claimed to be entitled to free duty as silver ore, that "the value of the silver contained in the ore being largely in excess of the value of the iron, the Department is of opinion that the ore is entitled to entry free of duty as silver ore." This decision was reaffirmed in January, 1886 (S. S. 7327), where it was held that "when silver in any ore predominates in value it is considered to be silver ore, and as such is exempt from duty under the special provision of the free list for ores of gold and silver. Where, however, lead predominates in value the ore is considered as lead ore, and is subject to a duty of 1½ cents per pound under the special provision in the tariff act for lead ore and lead dross. The question of classification, therefore, is one of fact which can only be determined upon examination of the importation for the purpose of ascertaining whether it consists of silver ore or of lead ore as aforesaid."

In a subsequent decision in May, 1886 (S. S. 7543), reaffirming the principle previously laid down, it was stated that "ores composed of silver and lead and iron, or silver and lead, or silver and other base metals of which silver is the component meterial of chief value would, under the ruling of January 25, 1886, be exempt from duty under the provisions of the free list for 'ores of silver.' It is immaterial in the entry and classification of such ores whether the ores are imported for use as fluxes in the fusion of other metals or on account of the metals themselves." The dutiable or non-dutiable character of these ores was the subject of an investigation by the Judiciary Committee of the Senate who reported on July 5, 1888, in effect that ores of the character mentioned—namely, ores containing more lead in weight than either gold or silver, but more gold or silver than lead in value—are not, in the opinion of the committee, subject to duty under existing law.

If the question presented were a new one and had not been the subject of administrative construction, fortified by the opinion of the Judiciary Committee of the Senate, I would feel at liberty to give greater consideration to the weighty arguments which have been adduced tending to establish the dutiable character of all ores of this description containing lead in appreciable or considerable quantity, the more so if it had been satisfactorily demonstrated that these ores are not known or entitled to be known commercially as ores of silver. It not having been so demonstrated, and it being the fact that since the original decision of 1880 on this subject Congress has re-enacted the pre-existing provisions of the tariff in regard to lead ores and silver ores, respectively, I do not feel at liberty to set aside the existing classification. It must be assumed that the rulings and practice of the Department were known to Congress when it passed the tariff act of 1883. It must be held that the designation of lead ore and silver ore in the tariff, in the absence of legislative definition, was that of existing decisions; that Congress intended the classification should turn on the question of value and not of quantity. It is, therefore, considered that this Department is without authority to change the departmental and Congressional definition of these ores and in faith of which large business interests have been established.

That Congress did not intend to impose duty upon the lead which might be found in the different ores, but only upon ores as were then recognized under the decisions of the Department as lead ores, is gathered from other parts of the tariff act, for in paragraph 186 "copper" is made dutiable whenever found in ore, and in paragraph 191 "nickel" is also made dutiable whenever found in ore or in other crude form. In those cases it is clearly the metal contained in the ore which is made subject to duty, and had the same form of expression been used in reference to the lead that metal would have been dutiable at the rate prescribed whenever found in ore. According to well-settled rules of statutory construction this difference in the form of expression must be deemed to indicate a different legislative intent and to limit the authority of the Department to impose duty in all such cases to the ore itself under existing rules of classification. I consider, therefore, that the present classification has attained the force of Congressional enactment, and that a change, if desired, must be sought in Congressional intervention. However, if ores of this description are imported which are distinctively known as lead ores, in the legal and commercial sense they would as such be dutiable. It is deemed advisable in this connection to enjoin upon the customs officers a strict enforcement of the regulations of this Department intended to correct abuses which formerly existed in the methods of entry sampling and classification of ores of the character mentioned.

Respectfully yours,
WILLIAM WINDOM, Secretary.

Tests of Bower-Barffed Iron.

In a letter to G. W. Maynard, president of the Bower-Barff Rustless Iron Company, Henry M. Howe incloses the following table of results summarizing his experiments in the matter of protective coatings for iron. The table records the loss of weight of wrought-iron and cast-iron with different protective coatings and under different conditions, in pounds per square foot of surface per annum :

Tests of Bower-Barffed Iron.—Sheet-Iron (No. 23 Gauge, Black).

Protective coatings.	Exposed to the weather inland.		Immersed in	
	Canada.	New York State.	Fresh water.	Sewage.
Bower-Barffed	.0	Gain .000.3	.006.7	.003.6
Tinned	Gain .002.0	.000.1	.019.4	.007.1
Nickel-plated	.0	.000.5	.050.4	.003.1
Galvanized	Gain .000.4	.....	.045.9	.080.5
Barffed	.001.0	.003.1	.083.9	.117.0
Black—*i. e.*, unprotected	.001.3	.002.6	.137.0	.169.0
Copper-plated	.000.2	.005.0	.179.0	.182.0

Cast-Iron.

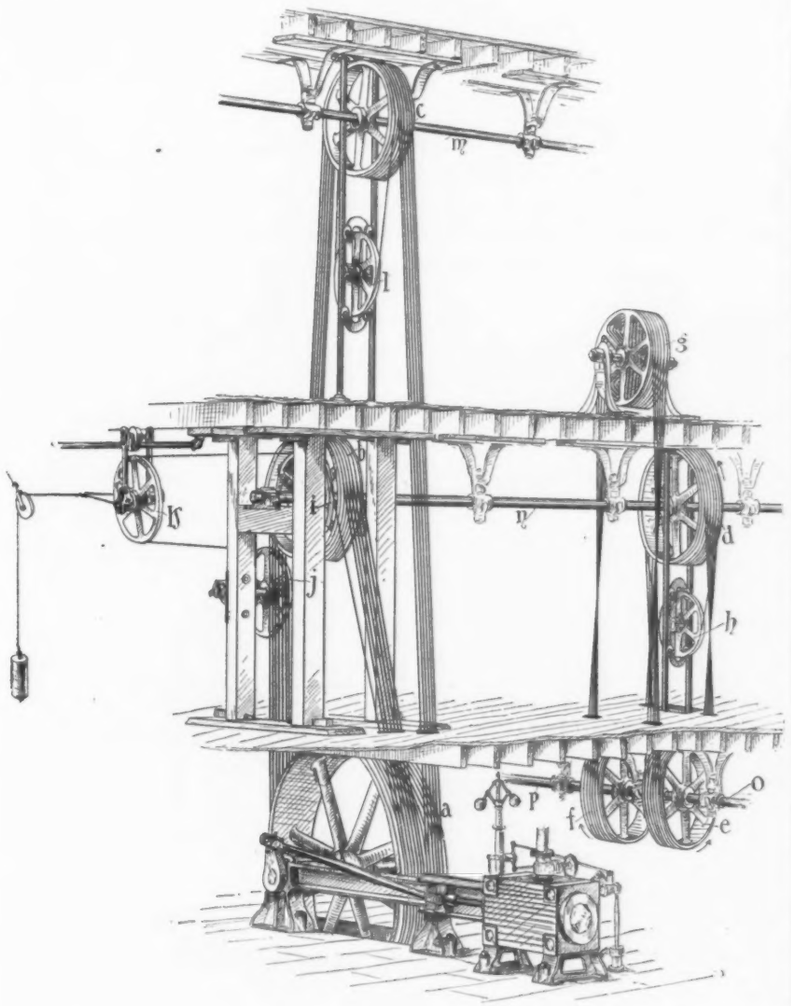
Protective coatings.	Exposed to the weather inland.		Immersed in	
	Canada.	New York State.	Fresh water.	Sewage.
Bower-Barffed	Gain .004.0	Gain .003.1	Gain .005.5	.001.4
Bower-Barffed and paraffined	.000.6	.001.9	.000.2	.008.4
Galvanized	.0	.0	.049.1	.061.0
Tinned	.....	Gain .003.1	.065.5	.061.0
Nickel-plated	Gain .003.4	.002.5	.136.7	.083.3
Copper-plated	Gain .004.0	.005.0	.150.8	.119.2
Black—*i. e.*, unprotected	Gain .006.3	.042.0	.148.3	.272.4

Mr. Howe writes: "The galvanizing was done by the Rhode Island Tool Company, whose work I understand is of the very highest, and they were informed that the work was for a test trial. The conditions were rigidly identical. It is a fair victory. Immersed in Chestnut Hill Reservoir, Boston, for a year, the Bower-Barffed wrought-iron plate was hardly discolored, except where held by the crate. Another immersed in the Boston main-sewer sewage for a year retained its skin and was only slightly pitted, while most of the tin was removed from a tinned-iron sheet beside it."

Nova Scotia last year produced nearly 2,000,000 tons of coal.

An Example of Rope-Transmission.

The accompanying engraving is an illustration of a rope-transmission erected July, 1888, for J. K. Russell, designed by John Gregg, M.G., of the Link Belt Machinery Company, Chicago. The engine is of the well-known Corliss type and is rated nominally at 250 horse-power. The fly-wheel *a* is 14 feet in diameter and is grooved for 12 1-inch ropes. The line-shafts *m* and *n* are driven independently. The rope-sheave *b* is 27 inches in diameter and is grooved for five ropes. At the side of the 72-inch sheave is a single-grooved idler, *i*, loose on the shaft. This loose sheave has the effect of making the transmission extremely sensitive to variations of loads, so that when heavy machines are thrown on and off the ropes are not set in vibration, but the tension-carriage sheave *k* swings back and forth on the track taking up the shock. The rope runs continuously around the sheave and fly-wheel from groove to groove. As it leaves the fly-wheel at the left hand, it passes over the idler *i* to the tension-carriage sheave *k*, which is suspended on adjustable hangers from a single pipe-track. This sheave is tilted so that the top is in line with the center of the groove of the idler-sheave *i* and the bottom is in line with the center of the groove of the deflecting-sheave *j*. The latter serves to carry the rope back to the right-hand groove of the fly-wheel. A constant tension is maintained on the transmission by means of the weights and rope acting on the tightener as shown. This permits the taking up automatically of any variation in the length of the rope. The sheave C is 48 inches in diameter and is grooved for four 1-inch ropes; at its side there is also a single-groove idler, loose on the shaft, for the same purpose as in the above. The slack is taken up automatically by the vertical tension-carriage *h*. The quarter-twist transmission runs the shafts *o* and *p* at right angles to the main drive. These shafts run in opposite directions, as indicated by the arrows, the object being to avoid twisting some of the belts on the machines. The driving-sheave *d* is 72 inches in diameter and is grooved for five ropes. The driven sheaves *i* and *f* are 60 inches diameter and are grooved for four ropes. G is a series of single-groove sheaves, one tight and three loose on the shaft, the object being to more readily act on the ropes by means of the vertical tension-carriage *h*.



ROPE-TRANSMISSION AT THE WORKS OF J. K. RUSSELL.

The ropes used are specially prepared for transmission purposes, being made from the best quality of Russian hemp, laid in tallow. These ropes, after more than a year of constant service, show no signs of wear, and are practically in as good condition as when put in place. Ropes generally go to pieces on the inside, this being occasioned by running over sheaves of small diameter. The fibers seem to chafe on each other, and when the rope is rubbed between the fingers it breaks in short pieces. Again, if a transmission is designed too light for the work and an excessive weight be put on the tension-carriage the rope soon pulls apart at the splice, but if it is allowed to slip it burns the outside fibers and the rope breaks. The Link Belt Machinery Company use large quantities of rawhide rope, the advantage being that it is more flexible and it can be run over much smaller sheaves, so that it is guaranteed for three years. The cost, however, is about twice that of hemp and it is but one-half as strong. It is believed that with large sheaves hemp rope will wear just as long. With regard to the life of a hemp rope over large sheaves and strong enough for the work, it is estimated that it would be from three to five years, though no ropes have run so long.

The Pullman Palace Car Company.

The manufacturing operations of the Pullman Palace Car Company, at Pullman, Ill., are so extensive that the following extracts from the president's report, just published, will be of interest:

There have been built and placed in service during the year 141 sleeping, parlor, dining and special cars, costing $17,812.73 each, or an aggregate of $2,511,596.17.

There are now under construction at the company's works 64 cars, the estimated cost of which is $985,000. These cars, when completed, will, with the 57 Mann, 127 Woodruff, 51 Union Palace and 3 miscellaneous cars purchased, make a total of 443 standard cars, besides which there are now being operated 239 tourist cars.

There has been expended during the fiscal year for additions to the company's shops and plant the sum of $63,098.20.

The value of manufactured product of all the car-works of the company for the year was $8,652,746.89, and of other industries at Pullman, including rentals, $1,735,417.64, making a total of $10,388,164.53, against $10,823,225.18 for the previous year. The reduction is due to a temporary lull in the demand for freight-cars in the spring of the present year.

The average number of names on the pay-rolls at Pullman for the year was 4541; the wages paid, $2,629,531.78, making an average for each person employed of $579.06, against $604 the previous year; but still a high rate per capita compared with the average of other manufacturing establishments of a similar character.

The total number of persons in the employ of the company in their manufacturing and operating departments is 11,063. Wages paid during the year, $5,770,345.26. The number of employees for the previous year was 10,530 and the wages paid $5,516,201.55.

The number of cars employed in the service is 1760 standard and 239 tourist, or second-class.

The number of persons carried during the year was 4,242,542. The number of miles run by cars was 144,842,618.

The total mileage of railways covered by contracts for the operation of the cars of this company is now 117,854, an increase of 11,723 miles over the previous year.

The population of Pullman, as shown by the census of July 31, 1889, was 10,610 persons—a again of 529 compared with the previous year. The population immediately surrounding Pullman has considerably increased during the year.

The Pullman Loan and Savings Bank shows savings deposits at the end of the fiscal year of $282,994—a gain of $20,837 over the previous year. The number of depositors has increased during the year from 1150 to 1200 and the average for each depositor has also increased from $227.96 to $235.82.

The entire enrollment of pupils in the public schools for the school year was 1262—627 boys and 635 girls—with a regular staff of 23 teachers. Evening schools have also been established for the

benefit of those employed during the day, where English studies, including mathematical drawing and geometry, are being taught.

The character of books drawn from the public library indicates an increasing demand for substantial literature, the works of fiction, including juveniles, being only 27 per cent. of the whole, as against 31 per cent. last year. This fact is suggestive in view of the returns made in ten English cities for the year 1888, which places the number of books of fiction and juveniles at 80 per cent., while 22 large English cities report an issue of 62 per cent. of works of fiction from their public libraries, exclusive of juveniles, for the same year.

Tests of Aluminium Alloys.

The well-known authority, Professor Tetmayer, of the Polytechnic School at Zürich, Switzerland, has made a series of tests for the Aluminium-Industrie Act. Gesell. at Neuhaus, on the influence upon the mechanical properties of aluminium on copper alloys. The following are the results obtained:

	Al. contents. Per cent.	Tensile strength. Kilograms per square millimeter.	Elongation. Per cent.
Aluminium bronze	$11_{.5}$	80	0 5
Aluminium bronze	11	68	1
Aluminium bronze	10	64	11
Aluminium bronze	$9_{.5}$	62	19
Aluminium bronze	9	$57_{.5}$	32
Aluminium bronze	$8_{.5}$	50	$52_{.5}$
Aluminium bronze	$5_{.5}$	44	64
Aluminium brass	4	69	$6_{.5}$
Aluminium brass	3	60	$7_{.5}$
Aluminium brass	$2_{.5}$	52	20
Aluminium brass	2	48	30
Aluminium brass	$1_{.5}$	45	39
Aluminium brass	1	40	50

Professor Tetmayer has plotted his results, the curve obtained showing that with increasing aluminium contents the tensile strength increases slowly at first, but then grows rapidly as the alloy is made richer in the light metal.

The Vesuvius.—The test of the dynamite cruiser Vesuvius was successful even beyond anticipations in respect of speed, and the guns were fired 15 times in 17 minutes, instead of 30 minutes, the limit of requirements. On a 2½-knot course she obtained an average speed of 21.646 knots an hour, and at one time she was going at the rate of 22.947 knots. Her three gun-tubes of 10½-inch diameter will carry shells containing each 200 pounds of explosive gelatine and dynamite to the distance of more than a mile. The compressed-air reservoirs are only required by contract to maintain a pressure without repumping sufficient to discharge 15 shots, five from each gun, to the distance and with the accuracy contemplated; but in Thursday's trial it would have been practicable to discharge additional shells, as the air-pressure, which started at 2000 pounds per square inch, had only been reduced to a little over 1200.

The Pencoyd Iron Works are using their new 20-ton hammer for making axles from 16-inch ingots, which certainly implies that much work is being put into the steel. At the same time double heating is avoided. The firm have just issued a pamphlet giving in detail the results of tests made for the acceptance of axles by customers. Among them we notice tests showing that the steel axles resisted before breaking as much as 50 blows from a 1660-pound ram falling 25 feet, when the requirements called for 5 blows only. The pamphlet contains four very handsome autotypes of the axle forge and 20-ton hammer.

The Stark Multiple Boring-Machine.

It frequently becomes necessary to bore many holes so near together that the usual method of operating the drill-spindles by belts or gears will not answer. The drawings here presented show a simple method, by means of which any number of holes can be bored at any desired distance apart, the drills all being operated by the same method. The drawings illustrate an invention recently patented by Charles A. Stark, of Corry, Pa., and show the simple method adopted by him for operating the spindles. The main driving-pulley D of the machine is mounted upon the outer end of a shaft, to which the operating gear is secured. Engaging with this gear are four others, L, of the same size, secured to shafts carrying at their inner ends disks, B, which have concentric recesses formed in them, as shown in Fig. 2. Between these disks and the journal-board holder G is placed the bit-driver C, Fig. 3, which is formed in a single piece and is provided with a journal at each of its corners, these journals fitting in the recesses formed in the four disks. The bit-driver is formed with flanges around three of its edges and with lugs at its top, through which set-screws are passed. The crank-carrier is placed between the flanges and lugs and is held rigidly in position by means of the set-screws. The four journals impart to the bit-driver and the crank-holder an even, steady movement, which cannot be obtained by means of the two cranks which are generally used for this purpose, for the reason that when the latter are employed a jerk is given to the holder at each reciprocation, which in a short time renders the machine inoperative. The journal-boards are held in the holder G and can be adjusted at will The block to be bored is placed in the holder I, Fig. 1, which is caused to move toward or from the drill by means of the treadle, the connection of which is shown. The boring-rods extend through the journal-boards at any desired angle, and may be arranged to bore holes whose axes are parallel with each other or at an angle. It is evident that the distance apart of the holes is governed solely by the amount of metal necessary to form the bearings for the drills and crank-ends.

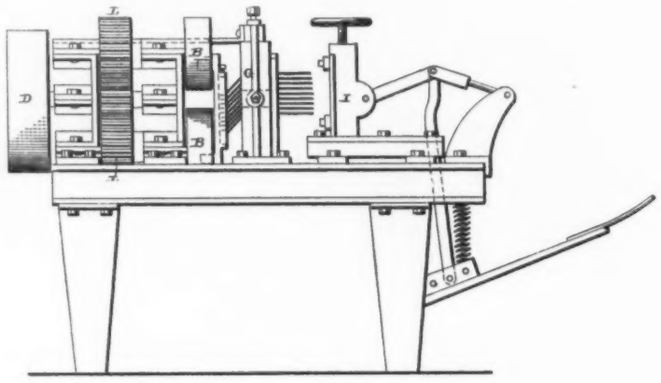


Fig. 1.—Side Elevation.

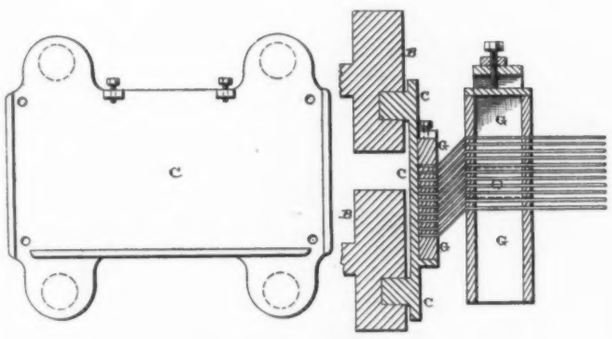


Fig. 3.—Bit-Driver. *Fig. 2.—Section.*

THE STARK MULTIPLE BORING-MACHINE.

A Mammoth Gun.—A cast-steel gun weighing 235 tons has just been shipped by Krupp from Hamburg for Cronstadt. The caliber of the gun is 13½ inches and the barrel is 40 feet in length, its greatest diameter being 6½ feet. The range of the gun is over 11 miles and it will fire two shots per minute. At the trials of the gun, held at Meppen in the presence of Russian officers, the projectile, 4 feet long and weighing 1800 pounds and propelled by a charge of 700 pounds of powder, penetrated 19½ inches and went 1312 yards beyond the target. The gun, which is the largest in existence and the heaviest yet exported by Krupp, had to be carried from Essen to Hamburg on a car specially constructed for the purpose.

The proposed removal of Rathbone, Sard & Co.'s stove foundry from Albany, N. Y., to Aurora, Ill., is already bearing fruit in inducing other Eastern manufacturers in that line to follow their example. Last week capitalists from Bridgeport, Conn., visited Aurora to arrange for the removal of a factory for making stove ornaments.

The Atlas Hydraulic-Screw Elevator.

The Springfield Foundry Company, of Springfield, Mass., manufacture the Atlas Hydraulic-Screw Elevator, which is generally located in the basement near the foot of the elevator shaft, but may be placed elsewhere if more convenient. The power is obtained from the pressure of water upon the piston, and in case sufficient supply and pressure from a street main are not obtainable a steam or other pump may be used to force the discharged water either into a direct-pressure tank near the engine or a gravity tank at the top of the building, whence it is again supplied to the cylinder. The cylinder is made of cast-iron and tested to withstand a pressure of 200 pounds per square inch. It is open at the forward end. The piston packing can easily be renewed by any mechanic.

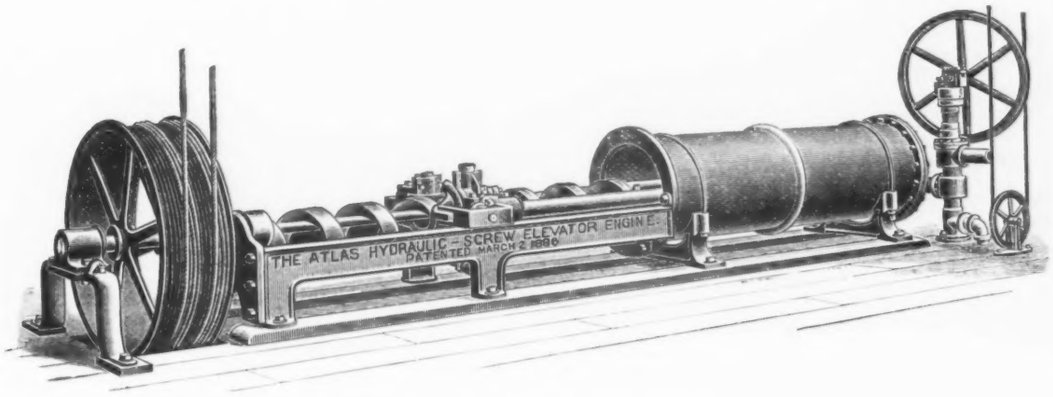


Fig. 1.—The Atlas Hydraulic-Screw Elevator.

The operation of the engine is as follows: The wire hand-rope (passing through the elevator car), being pulled downward, opens a balanced valve of special construction (shown at right of cut), admitting water to the cylinder back of the piston. There are two piston-rods, to the forward ends of which is attached a cross-head or nut through which passes a 6-inch cast-steel screw-shaft. A grooved winding-drum is keyed to the end of this screw-shaft and both are made to revolve by the movement of the nut upon the thread of the screw, the nut, with rods and piston, being forced forward by the pressure of water in the cylinder. The revolving drum winds up the hoisting cables and raises the elevator car. A slight upward movement of the hand-rope closes the valve and stops the car. A still further movement of the rope opens the discharge-port of the valve, allowing the water to escape from the cylinder. The car then descends by its own weight, causing a reverse motion of the drum, screw-shaft, cross-head and piston. The descending speed is regulated by the width to which the valve is opened.

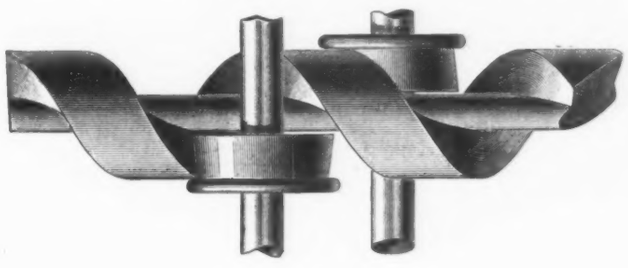


Fig. 2.—The Screw-Shaft

Fig. 2 shows the manner in which the screw-shaft passes between two heavy steel rolls in the interior of the cross-head or nut, thus doing away with friction and wear between nut and screw. The cross-head runs on rolls upon the flat top of the frame. Roller bearings of hardened steel overcome end-thrust friction of the screw-shaft and others surround the journals.

The piston-travel is usually one-tenth the travel of the elevator car; in some cases it is one-eighth. The diameter of the cylinder varies with the water-pressure available and the load to be raised, and the length of the cylinder depends upon the hight to which the car travels. The car is stopped automatically at the upper and lower landings and automatic safety devices prevent the accidental descent of the car in case of breakage of all the hoisting-cables at once, which, it would seem, is beyond possibility where two or more good cables are used. If required, an indicator can be attached to the elevator which will record the amount of water used.

The Strength of Alloys at Different Temperatures.

Prof. U. C. Union has brought before the Bristol Association for the Advancement of Science the results of an interesting investigation. The strength of the commonly-used alloys, such as gun-metal and brass, at moderately high temperatures is a question of some practical importance. It is well known that iron and copper decrease in tenacity as the temperature is raised, the latter in a very marked degree. There are also experiments showing a still more considerable decrease of tenacity in gun-metal. The author's attention was directed to the matter in studying some experiments made for the Admiralty in 1877. In these experiments, copper, Muntz-metal and phosphor-bronze showed a tolerably regular decrease of tenacity as the temperature was raised to 500° F., but in the case of gun-metal the results were more anomalous. The gun-metals tried were all alloys of copper, tin and zinc. In the bars tried the tenacity diminished tolerably regularly up to a temperature of 300° or 350°, but beyond that temperature there was a sudden decrease of tenacity, generally of more than 50 per cent., and at a temperature of 500° in several cases the tenacity had become *nil*. Now, at the high pressures and correspondingly high temperature at which steam-engines are often worked gun-metal is exposed in many cases to temperatures of 350° or 400°. It is practically important to know if at such temperatures its strength is seriously impaired. At any rate the author found that there were but few experiments on the strength of alloys at different temperatures, and of some of these the trustworthiness was doubtful; hence it appeared that it might be useful to make some new experiments.

Testing of Metals at Different Temperatures.

Metals.	Temperature. Fahrenheit.	Tenacity. In tons per square inch.	Elongation in 2 inches. Per cent.	Contraction of section. Per cent.
Yellow brass	*	24 09	41.0	61.0
Yellow brass	258°	22.44	30.5	28.0
Yellow brass	400°	21.23	19.0	10 0
Yellow brass	500°	18.33	5.0	†
Yellow brass	602°	15.86	2.5	†
Yellow brass	640°	14.49	1.0	†
Delta-metal (rolled)	*	31.16	20.0	55.0
Delta-metal (rolled)	260°	28.30	22.0	47.0
Delta-metal (rolled)	400°	26.58	25.0	53.0
Delta-metal (rolled)	500°	23.83	27.9	59.0
Delta-metal (rolled)	570°	19.32	38.5	60.0
Delta-metal (rolled)	650°	16 04	33 0	48.0
Muntz-metal	*	24.68	35.0	59.6
Muntz-metal	300°	22.83	28.5	41.2
Muntz-metal	400°	20.84	37.5	55.1
Muntz-metal	500°	18.81	28.5	38.4
Muntz-metal	600°	16.69	17.0	19.2
Muntz-metal	650°	17.15	16.0	†
Gun-metal	210°	11 66	10.0	15.8
Gun-metal	380°	12.26	17.0	18.2
Gun-metal	406°	11.06	12.5	12.8
Gun-metal	440°	12.30	16.5	7.6
Gun-metal	500°	7.84	13.0	14.8
Gun-metal	600°	5 22	1.5	2.1
Gun-metal	600°	7.84	..	†
Gun-metal	615°	4.82	..	†
Cast-brass	*	12 45	24.0	16.4
Cast-brass	350°	11.83	27.5	25.4
Cast-brass	450°	10.40	23.0	22.5
Cast-brass	500°	7.69	11.5	16.2
Cast-brass	550°	7.68	13.5	17.8
Cast-brass	645°	3.23	..	†
Phosphor-bronze (cast)	*	16.06	13.5	10.0
Phosphor-bronze (cast)	270°	14.16	12.5	12.4
Phosphor-bronze (cast)	350°	12.26	7.5	10.0
Phosphor-bronze (cast)	430°	12.41	10.5	8.7
Phosphor-bronze (cast)	500°	11 10	6.0	6.3
Phosphor-bronze (cast)	600°	8.17	3.5	2.5

* Atmospheric. † Very little.

In the present experiments the bars to be tested were fixed in an oil-bath heated by a gas-jet. The middle part of the bar for a length of 2 inches was turned down to a diameter of $\frac{1}{4}$ inch or $\frac{5}{16}$ inch. The

temperatures were taken by a mercurial thermometer. It is believed that the temperatures are quite accurate except those above 600°. Above 600° the thermometer behaved irregularly. The bars were broken in a small special testing-machine of the manometer type, the pressure on the diaphragm being balanced by a mercury column. Rolled bars of yellow brass, Muntz-metal and Delta-metal were tried, and the results on these are quite regular. Some bars of cast-brass also gave very fairly regular results. The bars of gun-metal gave results of less regularity. This is due, in part at all events, to the fact that some of the bars cast first proved unsound and new bars had to be cast to replace them. At some future time the author hopes to try a series of gun-metal bars all cast at the same time. The results were plotted in a diagram and show that in all cases the decrease of strength follows a regular law, without any such sudden loss of strength as was shown in the Admiralty experiments. Even at temperatures of 600° to 650° all the bars had a still not inconsiderable tenacity. The ultimate elongation of the bars in the 2-inch test length was measured and is given in the table.

There is a peculiarity in the influence of temperature on the ductility of the bars. In most cases the ultimate elongation diminishes with increase of temperature. With Muntz-metal the decrease is regular, and there is still considerable elongation before fracture at a temperature of 650°. With yellow brass—rolled—the decrease is more rapid, and there is very little elongation before fractures at temperatures above 500°. Cast-brass behaves in the same way. The elongations of the gun-metal bars were very irregular and at temperatures of 600° and upward the elongation was extremely small. On the other hand, in the case of the Delta-metal bars the elongation increased regularly with increase of temperature. The contraction of area was also measured. This follows generally the same law as the elongation at fracture, but the contractions of area are more irregular than the elongations.

Next to sugar-growing iron-mining is the most important industry in the district of Santiago de Cuba. There are 17 mines, wholly controlled by Americans, and last year the shipments of ore to the United States comprised 230,000 tons.

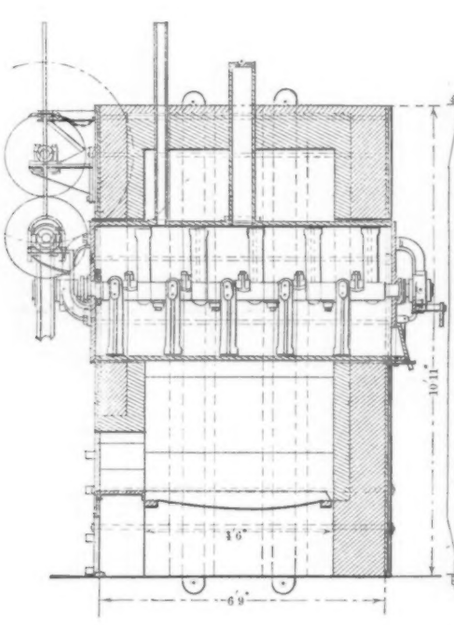
The Ramel-Conley Direct Process.

For upward of two years experiments have been conducted at Brewsters by Ramel and Conley with a new system aiming to overcome the difficulties of the direct process. Modifications in the detail of the plant have been found necessary from time to time, resulting finally in the adoption of the apparatus which we illustrate and which is now running at Brewsters, N. Y., in close proximity to the famous Theall Mine, of the Cheevers, where, by the way, a new large magnetic concentrating plant is approaching completion. The Ramel-Conley apparatus consists, as is shown in Fig. 1, of a cir ular cast-iron retort 6 feet 9 inches long, taking a charge of 1500 to 1800 pounds, in which revolves, at a speed of five revolutions a minute, an iron shaft carrying a number of scrapers to agitate the ore. As is clearly shown in Fig. 2, these agitators are driven by worm-gearing from a line-shaft. Each individual agitator may be stopped by throwing it out of gear by means of the clutch shown. Mechanically, considerable difficulty was at first experienced from the contraction and expansion of the agitator-shaft under different temperatures. This was overcome by providing water-cooled journals at its ends. When visiting the plant recently a representative of *The Iron Age* found that the end of the shaft was only moderately warm, so that the hand could be held against it without the slightest discomfort. Each retort is provided with a charging-tube shown in section in Fig. 1 and with a small pipe at one end for the escape of gas. Three of the retorts are grouped in one setting and are fired by two grates, as shown in Fig. 2. The Ramel-Conley Iron and Steel Company now have 12 of these retorts at work at their plant at Brewsters. The ore concentrates from the Theall Mine are mixed with 18 to 20 per cent. of reducing carbon, charcoal breeze having been employed so far. This charcoal is ground in a small mill, is mixed with the weighed ore and raised by bucket elevator to storage-bins. From the latter a charge is drawn into a closed car which stands on a track running along the whole length of the four benches of retorts. By opening a valve in the bottom of the car the ore is allowed to fall through the charging-tube into the retort.

The deoxidizing of the charge is carried through at a low heat, the temperature being at a dull red at the time of our visit. We are informed that the time required for a charge is four hours, that the consumption of fuel for heating the benches is 1½ tons per 24 hours, that the power required for the 12 retorts is 15 horse-power and that the force required per shift is as follows: One man for weighing, mixing and loading, one man for drawing and a fireman for the retorts and boilers.

The charge is drawn through the opening shown at the back of the retort in Fig. 1. It drops directly into sheet-iron storage-bins located at the back of the retorts, but not shown in our drawings. It is claimed that 95 per cent. of the oxygen in the ore is eliminated during the treatment. The striking fact to us was the low temperature at which the charge was worked and drawn, so that there was no evidence of burning of the iron, which so often occurs in direct processes. The retort form further avoids the danger of an absorption of sulphur by the iron through contact with the coal used for heating.

The Ramel-Conley Iron and Steel Company have followed in the direction so clearly marked out for all direct processes of using the product as the raw material for the manufacture of open-hearth steel. They have put up a 10-ton furnace, constructed by the Swindell Construction Company. It has recently made its first steel, as much as 60 to 65 per cent. of the charge being the deoxidized ore. The furnace has not yet been running long enough to allow of comparisons to be drawn with plants working on pig and scrap or pig and ore. At a cast at which we were present the only feature worthy of remark was the large amount of cinder made, a fact probably largely due to the circumstance that the ore reduced in the retorts was not so rich as it will probably be when the new concentrating plant at the adjoining Theall Mine is in operation.



Fi . 1.—Section.

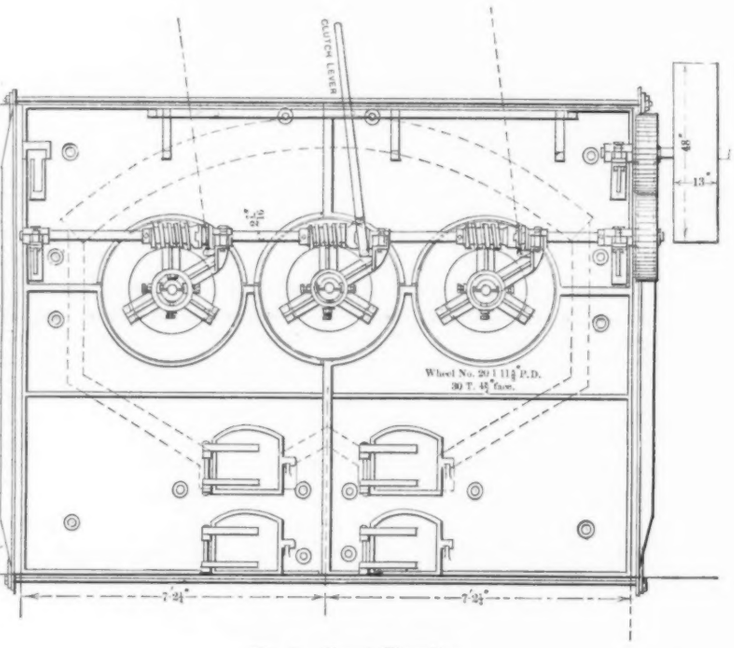


Fig. 2.—Front Elevation

THE RAMEL-CONLEY DIRECT-PROCESS PLANT.

THE WEEK.

Excavating the quicksand beneath the bottom of the lake at Cleveland, in order to obtain a water-supply for the city, came near proving disastrous a few days ago. The men in the shore tunnel were 1460 feet from the shaft, working above a vein of quicksand. The hollow sound made by the picks upon the floor of the passage induced a curious foreman to investigate what was beneath, and a hole was bored downward. In a few moments a stream of water rushed into the tunnel and quickly filled the passage as far back as the lock to a depth of 2 feet. The air-pressure was increased to 30 pounds, when the water was driven back through the opening whence it came.

A canal 170 feet in length and 4 feet in depth, for the exhibition of all descriptions of marine craft, will be a conspicuous feature in the proposed maritime exhibition at Boston. The canal will be oblong in outline, affording a circuit of 500 feet. A series of competitive trials will enliven the programme.

Secretary Proctor has prepared a circular of instructions respecting the practice to be followed in cases where bridges over navigable streams are said to be obstructions to commerce. When complaint is made the Chief of Engineers shall refer it to the engineer officer in charge of the district in which the alleged obstruction is located. He shall make an examination, giving the person or corporation controlling the bridge an opportunity to appear before the officer. The latter shall report to the Chief of Engineers, and he to the Secretary of War, who may order a board of officers to examine the bridge. When this report reaches the Secretary he may hear interested parties.

At a recent cotton fire in Georgia cotton-bagging, it is claimed, scored a good point. An Augusta paper says: "Flames which fed on the open, inflammable jute-bales, seemed to skip the closely-woven cotton-warp entirely."

The Canadian Government is again reviving the project for a steamship line to the West Indies, but its proposed fast-mail line to England is at least temporarily abandoned.

Eel-skins have become a formidable competitor of rat-skins for the manufacture of gloves, the former being impervious to water.

South American millionaires are cutting a wide swath in London. Colonel North, the Nitrate King, has a rival in Mr. Sanford, who made a vast fortune in Buenos Ayres. Sanford has purchased the old house of the Duke of Leinster in Carlton House Terrace and is converting it into a palace of the Renaissance style. The marble stairs, mantels and walls will cost enormous sums. A firm of upholsterers have been authorized to expend $300,000. Even a London plumber has been given *carte blanche*

The Mechanics' Association of Boston are considering the advisability of establishing a manual-training school. The Superintendent of the Public Schools in Boston, in an address to the association described a visit made by him to the six schools in St. Louis, Chicago, Toledo, Cleveland, Baltimore and Philadelphia, all of which are successful, and Rev. Edward Everett Hale spoke of the results of the system in New York and Chicago.

A little piece of iron, not more than an inch long, that became lodged in the cut off valve of the engine running the cable road in Cincinnati, was the occasion of the instant death of several passengers last week. A car on reaching the summit became detached, and rushing to the bottom of the plane with frightful velocity was dashed to pieces with fatal results.

Reading's great contemplated terminal railroad in Philadelphia has been actively commenced, and many buildings are being demolished to clear the route. The road will be elevated on a solid earthen foundation, with stone retaining walls on either side for its entire length, except at street-crossings. At each street crossed there will be handsome stone piers to support iron girders. The iron-work will be made by the Reading Iron Company and will include between 30 and 40 bridges besides iron-work for the passenger depot.

Of the enormous petroleum exports from this country last year New York shipped 74.5 per cent. as compared with 72.1 per cent. in 1888. The percentage of Philadelphia and Baltimore declined.

The corner-stone of Philadelphia's new House of Refuge, at Glen Mills, Delaware County, was laid last week. William Massey, the late Isaiah V. Williamson, Thomas P. Cope and proprietors of the Baltimore Locomotive Works were among the heavy contributors to the object. In addition to four large buildings just started there will be 20 cottages, costing $15,000 each, and the entire expenditure for buildings and grounds is estimated at about $600,000. A population of 1000 boys will be provided for.

The German market for American evaporated apples has been closed in consequence of the discovery of minute quantities of oxide of zinc, from the evaporating-pans. In most lots examined by the Hamburg Board of Health the percentage was about 0.004, but ranged as high as 0.43 per cent. A Western paper says Michigan evaporators, which furnish a large share of the total product, do not use zinc or galvanized iron at all, but dry their fruit mainly by the old method—that is, wooden trays. The New York evaporators use wire trays covered with tin, though some use zinc and galvanized iron.

The Pulitzer Building, for the *World* newspaper, will be a substantial structure of iron and stone, from architectural plans drawn by Geo. B. Post, who prepared those for the *Times* Building, and like the latter will be 13 stories high, surmounted by a dome and tower containing the editorial workshop of the newspaper. The foundations are entirely of brick, underlaid with 3 feet of concrete 35 feet below the curb-line. In the vault under the sidewalk will be placed a series of dynamos run by a number of high-speed engines and furnishing electric energy enough for 3500 incandescent lamps. The boiler-room will have a capacity of 1000 horse-power, while over it will be located the stereotype room, with vats of metal for the casting of plates. The entrance on the center of the Park Row front will be an arch of stone rising 78 feet and reaching across a span of about 30 feet

A report from Bridgeport, Conn., says the Union Metallic Cartridge Company have received a foreign order, supposed to be from Turkey, for 6,000,000 cartridges.

The London *Post* claims that England is a South American power, because of her ownership of Guiana and the Falkland Islands, and might reasonably feel jealous of any movement hazarding her mercantile supremacy, such as the proposed Zollverein of American nations.

Chief Arthur, of the Engineers' Brotherhood, in an address at the annual meeting in Denver last week, reiterated with emphasis his former statement that the organization is law-abiding, and said: "To-day I clearly define our position toward railway corporations when I say that only as a last resort do we sanction a strike." In speaking of the growth of the order he said the membership was 26,000, and that during the year just ended it had paid out to the widows and orphans of disabled members $306,000, making a total since its organization of $2,603,169.

The new Mechanics' Exchange in St. Louis, according to the plans submitted, will cost $125,000.

Referring to the necessity for adopting a universal code of signals to govern the maritime commerce of the world, Secretary Blaine happily remarked in his address to the International Maritime Conference at Washington that "while the spoken languages of the world will continue to be many, necessity commands that the unspoken language of the sea shall be one."

Western elevators and railroads are swamped with grain seeking a market, auguring an early advance in freight charges by railroad routes.

Large deposits of asphaltum have been discovered on the north coast of Cuba, near Puerto Padre.

The American steamship line to Porto Rico have supplanted the competing line, thus scoring one triumph for the flag.

There is an urgent popular demand in Colombia that the Government shall confiscate the Panama Canal.

Millions of money have been expended in developing natural gas. In Pittsburgh alone since last spring 150 miles of pipe have been laid, involving about $4,000,000 of capital.

The imports of coffee into the United States during the eight months ending August 31, 1889, were valued at $53,737,088—an increase of $18,072,547 over the average of the preceding five years. This fact indicates the increasing importance of American trade with Brazil, Venezuela and the coffee-growing States of Central America.

The old-style brick house No. 35 Beach street, New York, which for many years was known as the residence of the late John Ericsson and where he planned the cheese-box which encountered the rebel ram Merrimac with destructive effects, was last week sold at auction for $18,900.

A cable road on Broadway is proposed as a substitute for horse-power, but a preliminary difficulty exists so long as there is any question respecting the jurisdiction of the Railroad Commissioners and local authorities of the city in dealing with this subject.

Harbor appropriations recommended by Chief Engineer General Casey include $500,000 for Harlem River, $400,000 for Hell Gate and $100,000 for New York harbor channel.

Coal operators in Pittsburgh have contracts with lake ports to the extent of hundreds of thousands of tons, which they are unable to fill on account of the scarcity of cars. The Baltimore and Ohio and the Pennsylvania railroads are alike in fault, and predictions are made that prices of coal will be high in the Northwest.

The requisite length of propeller-blade is a consideration of the first importance with reference to economy of fuel and speed, as shown in the recent successful run of the White Star steamer Teutonic, when she made the trip from Eupope in 6 days, 6 hours and 27 minutes, beating her previous record. By reducing the propeller-blades 1 foot, to 19½ feet, the engines averaged 79 revolutions instead of 70, as formerly, and with less strain on the vessel. The consumption of coal, however, was increased to about 240 tons

every 24 hours, instead of 212, as before. The average speed, according to the engineer, was 18½ knots, as against 17½, although to accomplish this the furnaces burned 28 more tons of coal on an average each day, and the engineer thinks the greater consumption of coal is offset by the advantages gained.

A statement just prepared by the Mexican Foreign Office, showing the value of the commerce of that country with the United States for the past year, has been sent to the State Department by Minister Ryan. The imports were of the total value of $19,264,673, of which $8,731,835 went in free of duty. Of dutiable goods the principal receipts were cotton, provisions, drugs and chemicals, iron and steel. The exports to the United States aggregated $31,059,626, as follows: Merchandise, $13,144,510; precious metals, $17,915,116. The apparent balance of trade in favor of Mexico is $11,794,953, but the difference in currency reduces this balance to $2,209,067.

An important discovery of cinnabar in the district of Sonora, Mexico, is reported by Consul Willard, of Guaymas.

The Hawaiian ministry distinctly favor a protectorate by the United States, but will insist upon independence.

The National Board of Trade, lately convened at Louisville, adopted a platform opposing any modification of the Interstate Commerce law, especially the pooling provision, and favoring reciprocity with Canada.

American contractors have signed a contract to build a suburban system of railroads that are to connect Tacubaya, San Angelo and other towns with the Mexican capital.

Coal shipments at Cleveland this year to upper lake points promise to equal those of last year. The receipts in 1888 were 2,200,000 tons, of which about one-half was for local consumption.

Ecuador rejects the offer of a European syndicate to provide for the national debt, build railroads, &c. The South American republics are not all prepared to take steps preliminary to a receivership.

The value of cotton cloth imported into Mexico from all countries, according to the last British consular report, amounts to nearly 20 per cent. of the value of all imports, while the value of the cotton cloth imported from England amounts to nearly 60 per cent. of all British imports.

A company with $10,000,000 propose to lay a cable from Marseilles to Buenos Ayres. Although the republic owes about $475,000,000 it does not hesitate to guarantee interest on this investment.

Peru has approved the Grace bondholders' contract.

Claus Spreckels, the sugar refiner, says he has never deviated from his original purpose of maintaining independent manufacturing establishments both sides of the continent, in California and on the Atlantic coast. He has "no use for the Sugar Trust."

A large party of capitalists from New England and the West are examining the cotton-mills and coal-fields of Texas.

M. Koechlin, the engineer of the Eiffel Tower, has applied to the Swiss Bundesrath for a concession for the construction of a railway to the summit of the Jungfrau Mountain in the Swiss Alps.

Canadian immigrants during the season just closed numbered 24,000, which is a decrease of about 9000 compared with last year. They brought $278,700 in cash.

Jay Gould is building three more railroads, completing the Kansas system and stiffening the steel-rail market.

MANUFACTURING.

Iron and Steel.

The Illinois Steel Company have declared a 3 per cent. dividend out of their earnings for the past six months, payable in December.

The proprietors of the rolling-mills in and about Youngstown, Ohio, are preparing plans for the erection of a large steel plant to provide themselves with steel, of which they are yearly rolling increasing quantities. It is proposed that each establishment shall take a certain portion of stock in a corporation to be organized to build and operate the steel-works. The Mahoning Valley Iron Company, the Youngstown Rolling-Mill Company, Cartwright, McCurdy & Co., the Andrews Bros. Company and probably one or two other concerns will constitute the company. This scheme has been fruitlessly talked of in the past, but it now looks as though it would go through.

The Terre Haute Iron and Steel Company, Terre Haute, Ind., have recently purchased the plant formerly operated in that city by the Terre Haute Iron and Nail Company. The new company advise us that they are at present busily engaged in overhauling the entire plant, which will occupy about 60 days. The new company will make a specialty of merchant bar, cut nails, &c., and are officered by the following named gentlemen: J. P. Crawford, president; A. J. Crawford, vice-president and treasurer, both holding large interests in the Wabash Iron Company, the Vigo Iron Company, the Gadsden Furnace Company and other iron interests. Samuel L. Bridwell, secretary, was formerly with the Terre Haute Iron and Nail Company, extending over a period of 18 years.

The furnace of the Powelton Iron Company, at Saxton, has been blown in.

It is stated that Everett Furnace will soon blow in.

James P. Witherow has the contracts for the building of furnace plants at Buena Vista and Graham, Va., both for the Virginia Steel Company.

The Canton Steel Roofing Company report trade for the first half of October the best in the history of their 13 years' experience. Among many large contracts filled this month is one for 730 squares of pressed beaded ceiling, to go into a Lincoln, Neb., apartment store, one of the largest in the West.

P. H. Laufman & Co., Limited, proprietors of the Apollo Sheet Iron Works, at Apollo, Pa., have recently increased the capacity of their plant about 50 per cent. They are making every preparation to enter upon the manufacture of tin-plates as soon as Congress takes such action on the tariff as will make it possible.

Howe, Brown & Co., Limited, steel manufacturers at Pittsburgh, will increase their capacity by the erection of a 20-ton open-hearth furnace.

The firm of Jennings, Beale & Co., Limited, operating the West Penn Steel Works, at Leechburg, Pa., has been dissolved by mutual consent, B. T. Jennings having purchased the interest of J. G. Beale. Differences in reference to management some time ago led to litigation between the members of the firm, with the result noted above. The works include an open-hearth furnace and finishing department.

Both furnaces of the Reading Iron Company, at Reading, Pa., are being made ready for going into operation. One of them will be blown in about November 1 and the other shortly thereafter. This company have also recently purchased the two stacks of the Keystone Furnace Company, at Reading, stack No. 1 being in operation and will be operated through the winter. Stack No. 2 is undergoing repairs and improvements and will be raised to a hight of 66 feet, with 15½-foot bosh. It was originally 50 x 13½ feet. When stack No. 1 is blown out it will be remodeled, and made of the same size as No. 2. Albert Broden is superintendent of the furnace department of the Reading Iron Company.

On Monday, the 7th inst., the output at the Homestead Steel Works, of Carnegie, Phipps & Co., Limited, at Homestead, Pa., was 700 tons of finished product, which beats any previous record.

Riter & Conley, of Pittsburgh, have received the contract for the erection of the two new blast-furnaces of the Monongahela Furnace Company, of McKeesport, Pa. As the foundations for them are about completed, work will be commenced at once. It is not known as yet when they will be ready for blast. The first-named firm are building the two new blast-furnaces for Carnegie Bros. & Co., Limited, at Braddock, Pa.

Last week was a banner one at the Edgar Thomson Steel Works, of Carnegie Brothers & Co., Limited, at Braddock, Pa. During the week ending on Saturday, the 19th inst., 12,073 rails were made. On the night of the 18th inst. 1228 rails were turned out by No. 2 turn and 1039 by No. 1 turn, 8 more rails than were produced in the furnace run last March. The converting-mill made 664 heats, with a total weight of 7225 tons of steel. The Nos. 1 and 2 turns on the blooming-mill ran 56 and 57 heats respectively.

Pioneer Furnace No. 1, of the Iron Cliffs Company, at Negaunee, Mich., has been blown out for repairs. Stack No. 2, which has recently been relined and repaired, has been put in blast.

The puddling department of the plant of the Allentown Rolling Mill Company, at Allentown, Pa., which has been idle for over six months, resumed operations on Monday, the 14th inst., giving employment to about 125 men. The beam and bar mills will also resume operations about November 1 next.

Last week the Cambria Iron Company, of Johnstown, Pa., issued the following notice: "There will be a readjustment of the wages of the employees of this company, to date from November 1, to accord with the increased market value of their products." This notice means an all around increase in wages of 10 per cent., restoring them to what they were before the last reduction.

The Terre Haute Iron and Nail Company, Terre Haute, have added a 300 horse-power engine to their works.

During the recent shut-down of the plant of the Bellaire Nail Works, Bellaire, Ohio, the company made some important improvements for the more effective handling of their large output. They have just contracted for the erection of an additional battery of boilers for the steel-works. An electric-light plant has also recently been added.

Dunbar Furnace No. 2 of the Dunbar Furnace Company, at Dunbar, Pa., which has been undergoing repairs for some time, was blown in on Tuesday, the 15th inst.

The officials of the Crane Iron Company, of Catasauqua, Pa., made an inspection of the plant on Tuesday, the 15th inst. Various contemplated improvements were discussed and agreed upon. No. 3 furnace is undergoing changes which will make it equal in size to No. 1, now in

blast. The coal trestling will be raised to allow of increased storage, which will greatly facilitate and economize in the handling of coal.

The West Superior Iron and Steel Company, West Superior, Wis., are making improvements in their pipe foundry, with a view of manufacturing pipe at the lowest possible cost. They have ordered some of the Ridgway balanced steam hydraulic cranes, which will be used for dipping and handling pipe.

Machinery.

A very interesting device now in operation at the Exposition Building, St. Louis, Mo, is the Webster Vacuum Exhaust-Steam Economizer, manufactured by Warren Webster & Co., Philadelphia. The exposition steam plant has two pressure heaters made by well-known manufacturers. At the opening of the exposition it was found that the two heaters were not sufficient to do the work required, and one of the Webster heaters was placed in position. The two pressure heaters were tested and obtained a maximum temperature of 170° F. The Webster was then tested and easily reached 210° and kept steadily at work. It is probable that the managers of the exposition will purchase the heater as it stands.

Curtis & Curtis, Bridgeport, Conn., manufacturers of pipe cutting and threading machinery, are very busy filling large orders for their various sizes of pipe-threading machines. Their new works at Garden street are fitted up with the most improved and modern appliances for the manufacture of their specialties. The machines used are such as secure perfect uniformity in all the tools made at these works. Among the numerous orders is one from the Crane Elevator Company, Chicago, Ill., for a machine to cut threads on 2½-inch pipe to 12-inch pipe inclusive. It is claimed that this is the largest range of different-size pipe-threads cut by one machine. The difference between the Curtis threading-tool and others is that the pipe is held in a central position by a vise with parallel jaws concentrically screwed together, and the thread is cut by revolving cutters or dies. The dies are adjustable, and when the thread is cut they are withdrawn from the pipe. Thus one-half the time is saved by not having to run back the dies on the thread. On account of the gearing arrangement one man can cut and thread a 6-inch pipe, and much less power for the same reason is required in power machines, and in addition to the gearing the power used in revolving a ½-ton length of large pipe is dispensed with, as the dies and cutter revolve and not the pipe. Three of these machines were used by the Government Commission in piping the American section at the Paris Exhibition. These machines were exhibited after the completion of the work, and Curtis & Curtis have just been notified that they have been awarded the highest prize for pipe cutting and threading machinery. These machines have been used by the United States Government for some time.

The Jeffrey Mfg. Company, of Columbus, Ohio, report a very prosperous business. They have recently taken contracts to furnish three coal-mining companies with their coal-mining machinery to be operated by electricity. In addition to this, they report a good demand for their chain elevating and conveying machinery.

Work on the new car-shops of the Pennsylvania Railroad Company at Walls Station, about ten miles east of Pittsburgh, is being pushed as rapidly as possible. The principal building will be circular in form and sub-divided into circles. The outer circumference will be 432 feet, the second 236 and the third, or court, 100 feet. It will be constructed of brick, stone and iron and be well lighted. There will be tracks leading into doorways at intervals of a few feet. In addition to the car-repair shops there will be a number of other shops, among which will be a machine-shop 91 feet 2 inches by 51 feet 2 inches, a blacksmith-shop 102 x 60 feet, an oil, glass and paint shop 83 x 10½ x 20, a lumber-shed 128 x 50, a planing-mill 125 x 70 and a boiler-shop 80 x 40. The new shops when completed will give employment to about 1000 hands.

Manager William T. Hildrup, of the Harrisburg Car Manufacturing Company, of Harrisburg, Pa., has addressed a letter to the stockholders, notifying them that a syndicate of London capitalists have offered $500,000 for the entire plant. Of this sum $400,000 will be in cash and the balance in debenture bonds. The stockholders are asked to express their wishes in the matter.

The Regnall Foundry, at St. Charles, Ill., was destroyed on Monday by an incendiary fire. Loss about $20,000.

Craig Ridgway & Son, Coatesville, Pa., manufacturers of Ridgway balanced cranes, have been compelled to increase their facilities to manufacture them, and have begun the erection of a new shop of twice the size of their present one.

Hardware.

At a meeting of the stockholders of the Bryden Horse Shoe Company, of Catasauqua, Pa., held recently, it was decided to increase the capital stock of the corporation from $50,000 to $100,000. The company will have their new plant in operation about the 1st of December and employ a largely-increased force of workmen. The new engine and rolls have been received and are being placed in position.

The Lambert & Bishop Wire Fence Company, of Joliet, Ill., have added ten machines to their barb-wire plant to meet the increasing demand for their product. Their entire factory is now running double turn. Their daily product is 110 tons of plain wire, part for sale and part for conversion into barb-wire. The other active barb-wire factories in Joliet are those of the Ashley Wire Company and the Joliet Enterprise Company. They draw the wire which is needed to supply their barb-wire factories, and are now running up to their capacity to supply the demand.

The new japanning department recently added to the works of the Hartman Mfg. Company, at Beaver Falls, Pa., was completed last week. It is a large building, and is made entirely of iron. A large steam and hydraulic crane has been placed in it and is used to lift the heavy bundles of fencing into the paint-tanks and out again when thoroughly saturated with paint. This company have recently furnished the Sandringhan Palace in England, the residence of the Prince of Wales, with their wire mats, and they are about to do the same thing at a number of the other royal palaces. The Hartman wire mat has met with great favor in England, and they are shipping large quantities to that country at present, many of them extremely large and handsome.

The Wilson & McRae Hardware Company, of Hope, Ark., have filed articles of incorporation with a capital stock of $16,000. The officers are James S. Wilson, K. G. McRae, P. E. McRae and R. M. Wilson.

The Youngstown Stamping Company, of Youngstown, Ohio, manufacturers of stamped and japanned tin-ware and tinners' supplies, have been occupying a building on East Boardman street, in that city, owned by the Forsyth Scale Company. They have also for something over a year past been operating the glass factory which was owned by the Lane & Woodworth Glass Roofing Company. They have recently purchased the glass-factory property, which includes about three acres of land. On this ground they are erecting a building 350 feet long by 60 feet wide, in which to accommodate their tin-ware manufacturing department; also packing-rooms. Thsy are manufacturing quite extensively glass oil-cans, and the steadily increasing demand for the Friend proves its popularity. The company were compelled to increase capacity in all departments to accommodate their rapidly-growing trade. The new building will be ready for occupancy about December 1 next.

Ludlow-Saylor Wire Company, St. Louis, Mo., manufacturers of and dealers in Wire and Wire Goods, report a very busy state of affairs in their factory. They have just closed a contract to do all the wire-work in the new ten-story building being erected by the Bell Telephone Company. They are also building an artistic wrought-iron fence to inclose the grounds of a wealthy gentlemen in St. Louis, and they inform us this fence will be one of the handsomest they ever turned out.

Miscellaneous.

The introduction of the tubular iron car which the Minnesota Iron Car Company will make has been more rapid than is generally known. The New York Iron Car Company have now contracts for 3400 cars and orders entered for 7625. The number already built is 4950.

There has been much activity recently in the organization of manufacturing corporations in Illinois. Licenses to incorporate were granted to the following during the past week: The Smoke Preventing and Fuel Saving Company, at Chicago; to develop, manufacture and sell smoke-consumers and smoke-preventers and to sell certain patents to prevent the same; capital, $500,000; incorporators, James Ashworth, Charles Rose, Charles T. Stratton and others. Koenig & Bixler Mfg. Company; location, Freeport; capital, $30,000; incorporators, William Koenig, Peter Bixler and John Vaufal; to manufacture carriage and wagon wood-work. Rowe Heater Company, located at Chicago; to manufacture the Rowe feed-water heater and purifier and do a general manufacturing business; capital, $100,000; incorporators, Arthur E. Raze, Almon W. Bu'kley and Albert N. Eastman. Illinois Rail Brace Chair Company, at Chicago; to manufacture and sell a patent mechanical device known as Anderson's patent rail brace chair and tie-rod; capital, $100,000; incorporators, James J. Anderson, T. J. Smith and C. A. Webb. The Standard Mfg. Company, of Mount Carmel; for the manufacture of machinery and wooden pulleys; capital, $250,000; incorporators, Joel C. Pennington, Edward J. Pennington and R. H. Butler. The Staver Engine Company, at Chicago, to manufacture engines and boilers; capital, $100,000; incorporators, H. C. Staver, Lowe Emerson, G. H. Burrows and Jay P. Seymour. Little Giant Fire Engine Company, East St. Louis; to manufacture engines; capital, $30,000; incorporators, Robert Hilbert, C. C. Crecilus and M. Vanderhoff. Moore Car Door Company, Chicago; to manufacture car-door hangers and locks; capital, $250,000; incorporators, E. B. Springer, T. C. Moore, George P. Jones and George M. Brinkerhoff.

The C. M. Hunt Company, of New York, have gone largely lately into the manufacture of narrow-gauge railroad equipment. A pamphlet excellently illustrated has been recently published in which different designs of cars are shown for a wide variety of purposes. We note also drawings of the Hunt locomotives.

The Iron Age

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The Decline of the Barb-Wire Industry.

The very low prices of the past two years have wrought sad havoc in the ranks of the barb-wire manufacturers. At one time there was such a profit in the business that any one could manufac ure barb fencing if he was able to scrape enough money together to buy a few machines and the plain wire with which to run them. The barb-wire industry was then most flourishing, embracing some 75 establishments scattered over a very wide area of the country, but especially numerous in the States of the Mississippi Valley. Location or special adaptation to the business seemed to have no weight in the establishment of barb-wire factories. They were put up by men often grossly ignorant of business methods and were located quite frequently in out-of-the-way places to avoid the payment of license fees to the patentees. Profits were large enough to justify risks which would not ordinarily be taken in starting a manufacturing business. When the inevitable drop came in the price of barb-wire and the product of their machines could be sold for hardly as much as the plain wire and the labor cost this class of manufacturers was rapidly forced to succumb and the business became more concentrated in the hands of those who were able by local advantages, closeness to supplies of raw material, the introduction of economies in the process of manufacture or large reserve capital to continue in line and hold their trade until a reaction should set in and prices advance to a profitable point.

The decadence of the barb-wire industry, so far as a decrease in numbers shows a decadence, is very forcibly illustrated in the case of Joliet, Ill. Only three years since there were about a dozen establishments making barb-wire at that point, which became famous as the center of the barb-wire trade. At any meeting of the barb-wire manufacturers the Joliet contingent was conspicuous numerically as well as by reason of the natural force and vigorous enterprise of its representatives. How do they stand to-day? The number has been reduced to three. These three are in a condition of robust health, it is true, and have survived without damage the severe ordeal of bad trade and light profit through which they have lately passed, but their colleagues have all fallen by the wayside. And what has happened at Joliet has occurred in about the same fashion in other parts of the West. The small barb-wire factories, at one time a thorn in the sides of their big competitors, have fallen out of the ranks because it was impossible for them to win a profit from the business they were conducting. The moonshiners, once so thick in the West that they constituted a most important factor in the trade and harried the licensed manufacturers unmercifully, are gone, but not because the law drove them out of business. The absence of profits was a much more potent influence than the law ever was. There are less than 20 active factories in the entire country to-day.

The decreased number of barb-wire factories, however, does not prove that the trade is in a state of decay. On the contrary, it is one of our most vigorous and progressive industries. The surviving establishments are those mainly who draw their own wire and are thus independent of the fluctuations of the wire trade. They are expanding and increasing their capacity to meet the demands of their increasing trade, and though the number in existence is now but little over one-fourth of those in operation in the palmy days of the trade, their capacity for production is as great if not greater than the combined output of all the barb-wire factories then running. The consumers of barb-wire have no reason to fear this concentration of business. They have become accustomed to very low prices, which have now given way to higher figures on account of the advance in raw material. It is not likely that manufacturers of barb-wire will fall into the error of advancing the price of their product so far above the cost of making it as to start up the idle machines, even if the efforts now in progress to consolidate the leading interests should be successful. And when the price of raw material recedes, which is certain to occur in time, it is almost as certain that the price of barb-wire will fall proportionately. The factories now running are the best-equipped, best-located and best-managed concerns and will be run on business principles.

Legal Restrictions Upon Alleged Extortionate Profits.

It has been assumed that the charges for passing grain through floating and stationary elevators in the State of New York were extortionate. As a remedy a law was passed last year limiting the charge to ⅛ cent, and this law has been pronounced constitutional in the Court of Appeals, two of the judges dissenting. The majority vindicate their decision on the ground that the machines are "affected with a public interest." In another view the question may well be asked, especially bearing in mind that the elevators are in no sense a monopoly, whether private rights have not been wantonly violated and whether there has not been an unjustifiable invasion of personal liberty. Judge Field, of the United States Supreme Court, in a parallel case gave a dissenting opinion, in which he declared that if the Legislature of the State, under pretense of providing for the public good, or for any other reason, can determine against the consent of the owner the uses to which private property shall be devoted, or the prices which the owner shall receive for its uses, it can deprive him of the property as completely as by a special act for its confiscation or destruction. Another judge of that court held with Justice Field on grounds equally impregnable. In the case under review Judge Gray declares that this legislation "violates the social compact under which we live," and Judge Peckham pronounces it "an illegal effort to interfere with the lawful privilege of the individual to seek and obtain such compensation as he can for the use of his property." Here is a case where doctors disagree upon a fundamental point which it would have been well to protect beyond any room for question or shade of ambiguity.

Consequences of the Steel Famine.

The recent rapid rise in the price of mild steel products promises to bear the usual fruit of new works. Projects are already budding in various quarters, some of which will undoubtedly mature, although many of them may not advance beyond the first stage of discussion and the consideration of the several steel processes now in successful use. The very low price at which steel slabs and billets were sold early in the present year induced an increased number of rolling-mill operators to purchase steel for their use, as they could then sell some forms of their product as cheap when rolled from steel as iron. But steel is now parting company with iron, steel slabs and billets are hard to get even at the advance, and embarrassment is caused by the necessary return of these manufacturers to iron. Consumers have been educated to expect a better quality, owing to the substitution of steel for iron, and will probably complain of what they will allege is an attempt on the part of manufacturers to foist an inferior material on them. This is especially the case in the sheet-iron trade. Consumers of sheet-iron have been getting sheet-steel at sheet-iron prices, and crediting the manufacturers with improving the quality of their iron without knowing that they were getting steel. The enforced change to iron will undoubtedly breed dissatisfaction. Sheet manufacturers cannot remedy this state of affairs immediately, because they are unable to purchase steel slabs. They will be forced to put up their own steel-works, and those having the necessary capital within their reach are understood to be forming plans to this end as rapidly as possible. It is quite likely that in the near future one and perhaps more large steel-works will be built by associated iron-rolling mills to supply themselves with steel, which is now an indispensable material to them. They do not propose to be caught again by a sudden increase in the demand for steel. This means, of course, a more rapid substitution of steel for iron than ever after such new steel-works get into operation.

The long-delayed decision concerning the proper classification of Mexican silver-lead ores has been made at last. It leaves the matter practically in the shape in which it has been since the instructions issued by the Treasury Department, which were leveled against the "doctoring" of ore in Mexico. Under the interpretation of the tariff ore is allowed to enter duty free providing that its silver contents exceed in value its lead contents. It was the practice among the American and Mexican mining companies operating on the other side of the border to supply any deficiency in the precious metal contents of ores high in lead by the judicious mixture of other ore rich in silver. That practice was stopped by the instructions of July 5

last. Their enforcement led promptly to a curtailment of the quantities of lead entered free of duty as silver ore. According to official statistics, the importations of silver ore for the year ending June 30 contained 55,564,550 pounds of lead, of which 36,997,532 pounds entered Paso del Norte and 14,023,980 pounds Saluria, Texas. In July of this year the lead contents of silver ore was 5,533,780 pounds. The instructions of the Secretary evidently began to tell in August, since in that month the lead contained in silver ore dropped 2,281,342 pounds, these being the latest figures available. The bugbear of Mexican lead ores is therefore at rest for the present.

The Steam-Boiler.

The avowed purpose of the American Boiler Makers' Association is to improve the steam-boiler by every means in their power. In boiler-making such a thing as a standard is unknown, and it is doubtful if in any business of like magnitude there is so wide a difference between the decidedly good and the decidedly bad. It may be questioned, too, whether there is any piece of machinery in which poor material and bad workmanship can be so successfully concealed. By well-directed and persistent effort much can be done to establish the use of only the best material, but it will be a more difficult task to create standards of design and workmanship and to have them adhered to. Having accomplished this, the association should turn their attention to the user of boilers, and it is here that they will find an undertaking herculean in its proportions. They must endeavor to convince the user that the boiler is an apparatus requiring more than a shovelful of coal under it and a bucket of water in it—that it needs some attention. The coal it always gets, but the water is occasionally forgotten, and then it is that the boiler, in a way peculiarly its own, emphatically reminds its owner of his neglect

At the convention held in Pittsburgh last week a decided step was taken in the right direction. Upon consultation with several steel manufacturers present specifications covering the most essential of the chemical and physical characteristics of a standard steel plate to be sold only to members of the association were adopted. The plate must not contain more than 0.04 per cent. of phosphorus nor more than 0.03 per cent. of sulphur. Beyond this the composition of the plate is wisely left to the judgment of the steel-maker. In its physical properties the plate must have a tensile strength of 55,000 to 65,000 pounds per square inch and an elongation of from 20 to 25 per cent., according to thickness. The grooved or marine section used by the Treasury Department and heartily condemned by the Navy Department and expert engineers is replaced by an 8-inch straight or reduced section. Reduction of area is discarded, simply because it is impossible to obtain reliable results. An admirable provision is that stating that tests shall be made at the steel-works, since this insures accurate results by those experienced in testing.

We think the convention would have acted more judiciously had it not stated that "iron as a material for general boiler construction is out of date." This is perhaps true; nevertheless the manufacture of iron boilers cannot be immediately prevented. It is a question of time, and the survival of the fittest will settle the matter. That the steel selected will be widely adopted is more than probable, although it is confessedly not the best for the purpose that can be produced. It will answer the requirements, however, and can be easily made by any steel-works at a reasonable cost. In the future, and depending largely upon the progress made in the manufacture of steel, it will be the duty of the association to adopt a better grade. Having selected a steel satisfactory to and within the reach of all, the association will be compelled to see to it that that steel is not tortured while being put into a boiler. This can only be accomplished by a rigid and faithful system of inspection and a relentless weeding out. The selection of standards governing design and construction will require careful consideration and much time—first, to obtain the best, and, second, to procure their adoption.

Late Developments in Uruguay.

Uruguay is one of the smaller South American republics, not exceeding in area 186,920 km., with a population of 800,000 souls, of which the capital, Montevideo, contains 140,000. But the country is one of those whose progress, rapid as it is, rests on a very sound basis, and therefore inspires great confidence at home and abroad. There is, moreover, every disposition in Uruguay to give American goods, and agricultural implements in particular, the preference over European. Edward Casey, one of the wealthiest *extancieros*, or stock-raisers and agriculturists, recently sent an agent to this country—J. H. Covode, a Pennsylvanian—for the purpose of procuring agricultural machinery from the McCormick Company, Chicago, the Oliver Company, South Bend, Ind., and the Wood Reaper and Mower Company, Troy, N. Y., and he reports as follows: "Uruguay is a good country to live in. The chief industries at present are cattle, sheep and horse raising, but the lands are fertile and well watered. It is believed that agriculture will in time become the greatest industry. All cereals grow well—wheat from 30 to 40 bushels to the acre. The temperature never rises above 85° and it never freezes. Mr. Casey has a very large ranch there, embracing nearly 1000 square miles. He has in mind some large schemes for the development of the country; he is a man of great strength of purpose and resolute will and an immense amount of enterprise. A company have been organized under his co-operation, the National Company of Public Works, who propose under Government auspices to deflect immigration now pouring into the Argentine Republic to Uruguay and colonize vast tracts of land there—3,000,000 acres. These immigrants, it is expected, will chiefly come from the North of Italy and from Ireland. Mr. Casey is an Irishman himself. Homesteads will be granted to them, and in connection with his colonization plan it has been decided to build from 250 to 300 miles of railroad from Montevideo northward toward Brazil. It will run through the 3,000,000 acres intended for colonization purposes. The road will cost from $7,000,000 to $9,000,000." While the Argentine Republic will receive 370,000 immigrants this year, Uruguay will in all likelihood not get over 20,000, merely because the current has not set that way yet. The financial crisis at Buenos Ayres and the impending reaction in real estate and building can hardly fail to bring about re-emigration to Montevideo, only distant a day's sail by steamer, and the efforts of Mr. Casey and his company to divert the European current direct to Uruguay have every chance of proving successful.

In Uruguay the finances are in excellent condition, the public debt not exceeding $72,205,722, the income for 1887–88 being $14,739,000 and the outlay $13,422,000. The customs receipts of the republic were $6,846,176 in 1886, $8,687,312 in 1887, $8,860,449 in 1888 and during the first seven months of 1889 $6,143,000, being $892,788 more than during the corresponding period of 1888. Banking is carried on on a very solid footing by five banks at Montevideo, the National, $12,000,000 capital; the London and River Plate, $1,500,000; the English Bank, $1,250,000; the Spanish, $3,000,000, and the Italian, $2,200,000. The National Bank did a business in 1888 of $674,885,996, and declared 12 per cent. dividend. Bank-notes throughout the country command their face value in specie. One of the most remarkable features is the increase in foreign trade:

Uruguayan Import and Export.
In Thousands of Dollars.

Year.	Import.	Export.	Total trade.
1879.....	15,950	16,646	32,596
1880.....	19,479	19,752	39,232
1881.....	17,920	20,230	38,150
1882.....	18,175	22,063	40,238
1883.....	20,322	25,222	45,544
1884.....	24,550	24,759	49,309
1885.....	25,275	25,253	50,528
1886.....	20,195	23,812	44,007
1887.....	24,616	18,672	43,288
1888.....	29,477	28,009	57,486
Totals.	215,959	224,419	440,378

This shows an increase in total foreign trade of 76 per cent. in five years. Argentine trade was $110,000,000 gold in 1888, with a population of 3,500,000; Uruguayan trade was $57,000,000 gold, with a population of 800,000; hence, *per capita*, the former was only $31, while the latter was $72. Since January 30 last the export duty on Uruguayan products has been abolished. Our domestic export to Uruguay increased from $1,381,970 in 1887 to $1,388,769 in 1888, whereas the import thence decreased from $1,552,536 to $1,464,259.

There were in operation on July 1 last year 553 km. of railway, but since then a greater impulse has been given to railroad-building, two important concessions having been granted to English capitalists, who have undertaken to construct 700 km., one line to connect Montevideo with Rosario, Colonia, Mercedes, Palmira and Paysandu, and the firm of Perry, Cuthill & Co. have deposited with the Government £20,000 security for the construction of the other line, the Eastern Uruguay, to connect the Laguna Merin with Maldonado and Rocha. The city of Montevideo floated in May last, through Baring Brothers & Co., its first loan of £1,275,595, bearing 6 per cent. interest, at par.

The delegate for Uruguay at the Pan-American Congress is Señor Alberto Nin.

There are few nations south of us possessing a future so promising as Uruguay, and it is to be hoped that our relations with that country may become more and more valuable every year.

OBITUARY.

B. T. BABBITT.

One of New York's most successful business men, B. T. Babbitt, died in this city on Saturday last, aged 80 years. He began life as an inventor of machinery, enjoying the credit of having made the first mowing-machine of practical utility, and about 1858, after various vicissitudes, began the manufacture of soap. His endeavors in this direction developed into the establishment of the largest among the soap-works extant. One of the sights of New York to people interested in its manufactures has long been Mr. Babbitt's six immense kettles, made of heavy boiler-iron, their aggregate capacity being 3,500,000 pounds, while the value of the raw material it takes to fill them before boiling is $216,000. Most of the machinery employed in the great factory is of Mr. Babbitt's own invention, and a great part of his success in the business of manufacturing was due to his ability when a new idea struck him to make the machinery necessary to carry it out. All through his life his inventive faculty was busy with some new mechanical problem. In order to have scope for these ideas he erected extensive works in 1871 in the village of Whitesboro, Oneida County, N. Y., on the line of the Erie Canal. Not less than $500,000 was expended on these works. They were devoted principally to the construction of the boilers, engines and machinery required in the New York factory, as well as to the building of the various mechanical appliances which are Mr. Babbitt's own invention. Among these may be mentioned a steam canal-boat, built to solve the difficult problem of how to use a steam vessel in canals without endangering the safety of the banks by the vessel's "wash;" a rotary steam-engine without piston, cylinder or valves, and a combined steam-generator, condenser and steam-heater. Mr. Babbitt's fortune is estimated at $5,000,000.

JOHN CREERAR.

John Creerar, senior member of the great railroad-supply firm of Creerar, Adams & Co., died in Chicago on the 19th inst.

ISAAC R. JOSLIN.

Isaac R. Joslin, a retired civil engineer, died in this city on Monday of typhoid fever, aged 57 years. He was born at South Gardner, Mass. He came to New York when a young man and engaged in his profession. He was very successful in business. For a number of years he had been retired from active work, retaining only a pecuniary interest in the many concerns his mechanical ingenuity helped to build up.

It is positively stated that Andrew Carnegie, after waiting nine years for the city of Pittsburgh to accept his offer to provide that city with a free library, has determined to proceed solely on his individual account. The building, it is said, will cost $750,000 and will transcend any like institution in this country, the Smithsonian alone excepted. The architect who prepared the plans and specifications visited, in a preparatory way, the chief libraries of the Eastern cities. The Pratt, of Baltimore; Astor and Tilden, of New York; the Commercial, of Boston, and several others were critically inspected, as well as the Carnegie Free Library, of Allegheny, and the proposition is to embody the best of modern ideas in the scheme.

THE BOILER-MAKERS.

The American Association's Second Convention.

The second meeting of the American Boiler Makers' Association convened at Pittsburgh on the 14th inst. Although the association was only started April last, they now number 200 firms and embrace in their membership some of the most prominent boiler-makers in the United States and Canada. The fundamental object of the association is to bring the steam-boiler to a higher grade of perfection—to improve the design, to insure the uniform use of better material and to guard against inferior workmanship. The aim is to establish certain standards—the best now possible—and by living up to these requirements do away with the inferior grades now too frequently found; to substitute boilers which will be recognized as trustworthy in every respect. In order to fully attain this end the iron and steel manufacturers have been invited to aid the association in their selection of materials and to advise concerning the handling of the material during the building of the boiler. It is therefore to be assumed that the deliberations of the convention will be carefully weighed by both the manufacturer and user of boilers. The most important business transacted was the discussion and adoption of the reports of several committees appointed at the first meeting to consider questions which affect most intimately the character of the boiler. The report which received the most serious attention of the members, and which will without doubt be pondered over by those who were not present and by steel manufacturers, was that made by Col. E. D. Meier, of St. Louis; Richard Hammond, of Buffalo; H. J. Hartley, of Philadelphia, and J. R. Brownell, of Dayton.

MATERIALS AND TESTS—STEEL.

In order to get the average opinion of the members of the association on the qualities of the materials to be used in boilers and the tests for determining such qualities the committee addressed a series of nine questions to all the members of the association, as well as to others known to be experts in these matters. Somewhat over 1000 of these circulars were sent out, and while many neglected to answer them, replies were received from a number of parties which show that their authors had given much thought to the subject. The following were the questions propounded:

1. Is there any warrant for the use of wrought-iron in the place of homogeneous steel in the shells or heads of boilers? If so, what qualities do you find in the boiler iron of commerce not possessed in the same or a higher degree by boiler steel?

2. Should the use of cast-iron be permitted in boilers anywhere except in such minor parts as man-heads, mud-heads, hand-hole plates, &c.—*i.e.*, is it good practice to use cast metal for such parts as mud-drums, legs, necks, headers, &c., subject to internal strains?

3. What physical properties should cast-iron possess to make it safe for use in boilers?

4. For testing the physical properties of boiler steel or boiler iron there are four types of test-pieces in use, viz.:

a. The United States Treasury standard employed by Government boiler inspectors, and being simply a coupon with suitably reduced test-section made by cutting half-round holes near the center of the two opposite edges.

b. A coupon reduced to uniform width for a length of 2 inches by planing or milling down the opposite edges for that distance.

c. A coupon similarly reduced for a length of 8 or 10 inches.

d. A coupon planed or milled down to uniform width for its entire length.

Which of the four is best adapted to determine the requisite qualities of boiler steel (or iron)? Give reasons in detail for this preference.

5. Should different grades or qualities of metal be used in boilers—for instance, one for shells, one for fire-box or furnace plates, one for flanged heads, one for flues, &c., or is it the best practice to use but one grade throughout the boiler?

6. What physical qualities—such as tensile strength, reduction of area, per cent. of elongation, degree of bending, &c.—should good boiler steel (or iron) possess? (If different grades—par. 5—specify for each.)

7. How should bending-tests be made? Length of test-piece as compared with thickness or width; bending by successive blows of a hand-hammer, power-hammer, around a horn or mandrel, in a die or between the jaws of a testing-machine? Advantages or disadvantages of either method.

8. Between which practical limits of greatest and least heat must all flanging be done?

9. Which is the best material for rivets, charcoal iron or mild steel? Reasons for preference based on experience in the shop.

We deem it best in our report to follow the main lines laid down by these questions, but have brought in incidentally other points elicited in the discussion of these nine headings.

At our request several manufacturers and corporations, or their representatives, who have for a long time been engaged in the manufacture of boiler steel met us for an informal discussion, and readily gave us all the information necessary to complete our report.

We found the subject so deep and of such manifold ramifications that we can but briefly give the conclusions arrived at after carefully weighing the reports received and the information freely given us by both users and makers of these materials without entering into any detailed discussion of the various points. We do not believe that our report can be in any way accepted as final, and we hope that this, the most important question relating to our business, may be continued as a subject for investigation and discussion from year to year. We do not believe that the materials we recommend are the best that can be possibly produced.

If no limit is put upon the cost of producing boiler steel a degree of excellence can be reached which is far beyond the average requirements of good practice. What we have aimed to arrive at is the specification of such materials as will insure perfectly safe, durable and strong boilers of very much higher quality in every way than the present average. The cost of such material will be proportionately higher than the inferior materials now so frequently used where competition in prices only determines their selection, and where the absence of careful inspection laws brings their choice within the province of purchasers who know little of the importance of using a higher grade of metal, rather than to those whose daily experience in the manufacture of boilers gives them the opportunity to judge of their requirements. We believe that the materials herein recommended are of such good quality that they will pass the most rigid inspection laws now existing in the United States. We trust that this step once taken in the direction of better work will tend to induce manufacturers of boilers, as well as the public at large, to admit of still better materials in the future, and we believe that our association should in this rather lead than follow an educated and enlightened public opinion.

The unanimous opinion of all parties is that the use of cast-iron in mud-drums, legs, necks, headers, &c., and in any part of boilers where it will be subject to tensile strains, is dangerous and should not be permitted. For hand-hole plates, crabs, yokes, &c., of man-heads it may be used, but only a superior article, such as is generally known as "gun-metal," should be thus employed—*i. e.*, a metal of soft gray texture and of a high degree of ductility. For the strengthening rings of man-holes homogeneous steel or wrought-iron or soft and annealed steel castings should be used.

In testing materials for boilers the grooved section known as the marine section, because still in use for marine inspection purposes under the regulations of the Treasury Department, should be discarded and the 8-inch straight or reduced section exclusively used by the inspectors of the United States Navy should be substituted. It is immaterial whether the test-piece be a straight planed piece or an 8-inch reduced section, planed or milled down. The latter has some practical advantages in the testing-machine, but is somewhat more expensive to make and has the further objection of consuming more time in preparation.

The cross-sectional area of the test-piece should be not less than one-half of 1 square inch; *i. e.*, if the piece is ½ inch thick its width should be 2 inches; if it be ¼ inch thick its width should be 1 inch. But for heavier material the width shall in no case be less than the thickness of the plate.

On this test-piece the metal shall show the following physical qualities:

Tensile strength, 55,000 to 65,000 pounds per square inch.

Elongation 20 per cent. for plates ⅝ inch thick or less.

Elongation 22 per cent. for plates from ⅝ to ¾ inch thick.

Elongation 25 per cent. for plates over ¾ inch thick.

The reduction of area as a test is found to be entirely unreliable by all expert testing-engineers. Not only is it impossible for two inspectors to get even approximately the same reduction of area in their measurements of the same piece, but no single inspector can get the same measurement twice in succession

Chemical Tests.—The percentage of carbon and manganese is best left to the judgment of the steel-maker, but there should not be more than 0.04 per cent. of phosphorus nor more than 0.03 per cent. of sulphur in good boiler steel.

Bending-Tests.—Good boiler steel up to ½ inch in thickness should be capable of being doubled over and hammered down on itself without showing any signs of fracture, and above that thickness it should be capable of being bent round a mandrel of a diameter equal to one and one-half times the thickness of the plate to an angle of 180° without signs of distress. Such bending-pieces should not be less in length than 16 times the thickness of the plate. If the bent edge shows any roughness, which under the magnifying glass will appear as a series of incipient cracks, the specimen should be rejected. In preparing specimens for bending the rough shear edges should be milled or filed off. The pieces for bending-test should be cut both lengthwise and crosswise of the plate.

We recommend that all tests be made at the steel-mill. Three pulling-tests and three bending-tests shall be made from the plates of each heat. If one of these fails the manufacturer shall have the right to prepare and test a fourth piece, but if two fail the entire heat to be rejected.

When a member of this association orders a lot of steel from a steel manufacturer he shall be entitled to receive a certified copy of the chemical and physical tests of the heat from which his plates are made, which must conform to the above requirements.

It is, of course, understood that all boiler steel must be made by the open-hearth or crucible processes.

The flanging of steel should be done at not less than a good red heat, and not a single blow should be given after the plate is cooled down to less than cherry-red by daylight. After flanging, all plates should be annealed simply by uniform cooling from an even dull red heat for the whole sheet in the open air.

Rivets.—Rivets should be made of good charcoal iron or of a very soft mild steel running between 50,000 and 60,000 pounds tensile strength and showing an elongation of not less than 30 per cent. in 8 inches and having the same chemical composition as specified for plates.

THE DISCUSSION

of this report, which we have given as finally adopted, brought out much information in regard to both steel and iron and their behavior in the boiler. Although the convention was almost unanimously in favor of steel for boiler purposes rather than iron, the fact was elicited that for certain parts and when used under certain considerations iron is superior to steel. When muddy water is used without the employment of any of the well-known devices for purifying it mud-drums of iron will outwear those made of steel. This is the case on the Ohio River boats. There is no pitting in iron as there is sometimes in steel. Under these circumstances iron lasts the longer, because the slight amount of slag in it guards it against the corrosive action of the water. Steel considered as a product is more homogeneous, and the particles drawn out under the rolls are interlaced as to so do away with the grain that tests made in both directions give practically the same results. In iron there is a grain and a difference in strength with and across the grain, which in some makes amounts to considerable. The fact that steel has so largely displaced iron for boilers is due to the fact that on the average steel is more uniform in all of its characteristics and can therefore be more confidently relied upon.

In the report as first presented the elongation was 25 per cent., 28 per cent. and 30 per cent. for plates ⅝ or under, ⅝ to ¾ and ¾ or over, respectively. Upon the remonstrance of the steel manufacturers present, who deemed this excessive, the figures were changed to those given in our report above.

The most convincing testimony concerning the superiority of steel over iron was that presented in a communication to the committee from Paul Kreuzpointner, of Altoona. Since 1868 the use of iron for boilers on the Pennsylvania Railroad has been entirely abandoned, and of the 2600 locomotives there is not a single one with an iron boiler. Of the thousands of steel boilers and fire-boxes built at Altoona only one ever exploded, with but slight consequences (crown-sheet collapsing), and that was due to the negligence of the engineer and not to defects in the material. We make the following extracts from the communication:

"Since the expansive quality of cast-iron depends, generally speaking, on its degree of hardness, and since it is desirable to have the cast-iron around a boiler expand as much as possible uniformly with the metal composing the boiler, a soft but tough grade of iron should be used. The grade from which good machine castings are made seems to recommend itself as most suitable. Such iron is open grained, uniform texture, gritty to the touch of the finger, dark gray color and has a tensile strength of from 14,000 to 16,000 pounds per square inch. The 1-inch Government section of test-piece has long since been found to be worthless as a measure of quality. A 2-inch section measured between fillets, which then, taking each fillet as measuring ¼ inch, measures 2½ inches between shoulders, is the most suitable for every-day testing. The Pennsylvania Railroad use this as a standard with entire satisfaction.

"Theoretically a straight section is the best, because the longest, but in practice a straight-section test-piece is very apt to break in or near the grips of the testing-machine, and thus prevent the metal from stretching as much as it would otherwise. There is practically no difference in results between an 8-inch and 10-inch section; hence the former is universally used here and in Europe whenever anything else is inquired into than tensile strength and elongation. But it is more expensive to prepare, and if the section is not carefully prepared and of exactly uniform width the whole length the results are misleading. I use an 8-inch section only when ascertaining the elastic limit of materials. A long section is preferable, because it allows all the particles of the metal in the section to take part in the work of resisting the force of the test-machine to pull it apart, and, of course, the more material in the piece to be tested can take part in that work to resist pulling it apart the more the qualities of the whole piece of metal come into play.

"By all means use different grades for boiler and fire-box. That is, for inside side-sheets, crown-sheet, flue-sheet and door-sheet a better grade should be used than for all the rest of the boiler. That is to say, specify flange grade for the boiler and fire-box grade for the five fire-box sheets Flues, whether of iron or steel, should always be of the best material, but as they are bought already made the boiler-makers have only the choice in price.

"Fire-box steel should have a tensile strength of not less than 59,000 pounds nor more than 68,000 pounds per square inch, nor less than 30 per cent. elongation in a 2-inch section measured between fillets. When nicked slightly and broken in the vise the fracture should have a fine granular or dense, close appearance. Any fire-box metal which shows laminations or resembles fibrous iron should be rejected. Experience has proved beyond question that a somewhat hard metal with a close homogeneous structure gives best service for fire-boxes, but it should not be above 69,000 or 70,000 pounds per square inch. Flange steel may run from 50,000 to 65,000 or 66,000 pounds per square inch and not less than 25 per cent. elongation in a 2-inch section. While not so essential, yet in flange steel laminated material should also be avoided. Boiler-makers are apt to prefer such material, though, because it works and flanges easier, but much mischief has been done thereby. A good piece of boiler steel such as described must stand bending double, cold, and hammering it together under the steam-hammer without showing a crack. Reduction of area is all right in theory, but is of no account in every-day practical service and testing. While it is true that contraction is part of the Government specifications, it is also true that good contraction does not always indicate the best material. After six years of testing and experimenting the German Government dropped contraction of area from the Government specifications and substituted last year elongation instead.

"If bending-tests are to be made the test-piece should be from 14 to 16 inches long and from 1 to 2 inches wide. In order to secure uniformity in the application of the bending force a press or drop should be used and the bending should be done quickly. Edges of bending-piece should be filed smooth.

Steel being harder than iron, it requires quicker work in flanging and does not permit violent bending at a low red or so-called 'blue' heat. Many an excellent sheet of steel is spoiled in flanging for want of care. At the Altoona shops not a single sheet was cracked in flanging during the last five years out of the many thousands of sheets used from a dozen different makers."

No steel is fit for boilers except that produced by the open-hearth or Siemens-Martin process. Most of the failures and disappointments in the use of steel for boilers is due to the fact that so-called Bessemer steel is used.

As this report covered only steel for boiler use the same committee made the following report on

IRON FOR BOILERS.

Your Committee on Materials and Tests, to which had been added Mr. Leonard, of Ontario, and Mr. Cahall, of Ohio, met to consider the claims of iron as a material for boiler construction. We had the benefit of the experience and advice of an expert boiler-iron manufacturer. After duly weighing all statements and arguments by the advocates of iron we can only adhere to our original decision—that iron as a material for general boiler construction is out of date.

While in the standard of steel recommended by us and adopted unanimously by the convention we limited ourselves to requirements and tests which any good steel-mill can comply with in its every-day product, and within a range of cost making it practical and possible for every maker of safe and honest boilers to use it in his regular line of trade, and while still better material can be furnished for special requirements by the steel-mills, it appears that the best possible boiler iron of to-day, while undoubtedly better than the best brands of 10 or 20 years ago, cannot reach the moderate limits of tensile strength and ductility established for the "A. B. M. A." brand of boiler steel, and that the modern and practically universal shape of test section adopted by this convention cannot be conceded by the iron men, so that as a compromise between the modern 8-inch section and the antiquated groove section your committee conceded a 2-inch section for iron.

It appears, however, that for certain localities where either necessity or prejudice compels the use of impure feed-waters without previous purification by any of the well-known mechanical or chemical means of modern good practice boiler manufacturers are obliged to use iron in place of steel in boilers, or at least in certain parts of the same. And it is known, moreover, that the slags or impurities of iron resist corrosion better than iron itself.

We therefore recommend that the brand "A. B. M. A.," with the addition of the word "iron," may be granted to manufacturers of boiler iron whose product will come up to the following requirements: Tensile strength, 52,000 to 62,000 pounds per square inch; elongation not less than 20 per cent.; test-pieces 2 inches in length between fillets, cut both lengthwise and crosswise of the sheet; the iron to show no laminations, but to be homogeneous throughout. On fracture it must show only one quality of texture across the entire break.

It was resolved by the convention to have the letters "A. B. M. A." registered as a trade-mark by one of the officers and to have all steel and iron which conform to the above specifications stamped with these letters by the manufacturer, such stamped plates only to be sold to the members of the association. It was the general opinion that there should be uniformity in the size, form and material of

MAN-HEADS AND MAN-HOLES.

Since boiler pressures are now employed up to 400 pounds in every-day practice, it is essential that the man-head should receive the attention due to it. It was decided that cast-iron as a re-enforcing-ring was most decidedly unreliable. The different qualities possessed by the iron or steel in the boiler and the cast-iron in the ring destroy the qualities looked for. The ring should be of iron or soft steel and should have one-third more area than had been cut from the hole; an opening of 10 x 16 to be made in heads and 9 x 15 in drums and fronts of tubular boilers. One method, which has been tried successfully by several of the members, consists in forming a flange around the man-hole, which is first cut out somewhat smaller than the finished size, and the surplus metal turned to form a flange around the opening. Then the head is also flanged to correspond with the flange in the boiler-plate.

The committee appointed to consider the question of

PROPER RULES FOR RIVETING AND CALKING

was composed of R. M. Connery, of Philadelphia; John MacCormack, of Albany, N. Y., and J. Mathews, of South Bend, Ind. The committee presented in tabular form valuable data calculated to bring the strength of the plate at the seam as compared to the solid part of the plate, and the strength of the rivet as compared to the solid part of the plate, as near alike as possible. The tables give the number and thickness of the plate, number of rows of rivets, size of rivets, pitch of rivets, size of rivet-holes and the value (strength) of the plate at the seam and the value of the rivet.

In the discussion it was stated that the steel rivet is reliable when driven by hydraulic or steam machine, but when driven by hammer the iron rivet is better because of the quick tendency of the steel rivet to crystallize. While it was impossible to condemn hand-riveting, owing to the fact that there are some seams in a boiler which must of necessity be hand-riveted, it was the opinion that hand and machine riveting occupy the extremes in regard to quality, the button-set coming in between. In punching plates the punch and die should not vary more than $\frac{5}{100}$ inch. Plates when properly punched are in no way injured. It has been shown that the burr from a hole can be made to weigh less than the metal originally in the hole, thereby showing that during the operation of punching a part of the metal had flowed into the sheet.

The committee on

BRACING, STAYS AND PROPER TUBE-SPACING,

consisting of G. C. McNeil, of Akron, Ohio; J. P. Jefferson, of Warren, Pa., and Henry Warden, of Philadelphia, reported as follows:

"The question of tube-spacing is largely dependent on the quality of water to be used and also on the circulation of the water in the boiler. The generally received opinion of water circulation is that there are two currents at work in the boiler. Both have their rise at the bottom just over the fire. One is a fore-and-aft circulation, the other an up-and-down current. The fore-and-aft current rises among the tubes carrying the water from the lower front to upper back end. There it falls and sweeps the bottom to the front again. The up-and-down current rises among the side tubes and falls among the center tubes, the center being colder than the sides.

"The spacing must be arranged to give as free play to these currents as possible, so that when steam is found on a plate it may be immediately swept off and taken to the steam space. It appears to be necessary to have a large space at the bottom of the boiler so that a sufficient body of water may be maintained there to prevent burning. There should be a good space between the shell and tubes and a center space should be allowed between the tubes for a downward current.

"The distance of the tubes from each other should be dependent on the quality of water used, but must be enough to allow a free circulation. My practice (Mr. McNeil) is to allow a space between shell and tubes of one-eighteenth of the diameter of the boiler. This gives 3 inches of space in a 54-inch boiler and 4 inches in a 72-inch boiler.

"The center space should be one-twelfth of the diameter of the boiler, giving 5 inches in a 60-inch and 6 inches in a 72-inch boiler. This rule is independent of the size of the tubes.

"Each tube should be one-third of a diameter from every adjoining tube both horizontally and vertically, but no tube of any size to be nearer than 1 inch to any other. One good reason for minimum is that less distance will not give sufficient strength to the metal between holes to resist the stretch of the expander in resetting tubes.

"There should generally be a man-hole below the tubes. Especially so with bad water to facilitate cleaning. Also to make sure that there is a sufficient body of water below the tubes. In small boilers use a small man-hole or a very large hand-hole. The tubes should not be placed higher than three-fifths of the diameter from the bottom of shell except where a dome is used, when they may be carried one row higher. One method of arriving at the proper number of tubes in a head is to make their inside area a certain percentage of the area of the head. Sixteen to 18 per cent. of the area of the head seems to give good results. The ends of tubes should be beaded to aid the tubes in staying the heads.

"The theory of stay-bolts is that the bolt should be large enough to support the maximum area of plate which will remain flat under a given pressure. Ascertain the area in question. Find what strain it will put on the bolt and make the area of the bolt at the bottom of thread enough to stand the strain. We recommend 14 threads to the inch as the best for bolts.

"In bracing there are many forms. The ordinary crow-foot is the cheapest, and in small boilers with a large factor of safety is as good as any. The one objection is that it requires the use of welds, and a weld as made by a common smith may be bad. The best form for large boilers, and especially for high pressures, is a gusset brace, not made in the English fashion with a short plate, but with a long wide plate reaching back one-third of the length of the boiler. This brace stiffens the head with the heavy angle-bars used. The strain is always a direct pull or shear and there are no points where the strength cannot be known and calculated to a nicety.

"The jaw-brace with turned pin is open to the objection of possibility of defective welds. Long bars from head to head are a nuisance in cleaning the boiler above the tubes, and when used below the tubes are liable to be pulled out or stretched by the expansion of the bottom of the shell.

"The crow-foot braces should be spaced an average of 8 inches apart, and if made of good 1-inch round iron will stand 100 pounds pressure.

"The bars should lie in a plane passing radially through the center of the boiler. The space the flange of the head can support varies with the thickness and diameters, but with a flange of 2 inches radius may be taken as 3 to 4 inches. The lower braces should be 4 inches from top row of

tubes and the upper braces 6 to 8 inches from the shell."

The following Committee on Statistics was appointed: E. D. Meier, chairman; Alfred H. Raynal, Richmond, Va.; Geo. S. Barnum, New Haven, Conn.; Geo. Brush, Montreal, Canada, and Mr. Moore, San Francisco, Cal.

All the other committees appointed at the first meeting were continued.

The officers of the association are James Lappan, of Pittsburgh, president; A. T. Douthett, of Allegheny, secretary; R. Hammond, of Buffalo, treasurer; Philip Rohan, of St. Louis; Geo. Marshall, of Dayton, Ohio, and Christopher Cunningham of Brooklyn, N. Y., vice-presidents.

The next convention will be held in New York on the first Tuesday in July next.

CORRESPONDENCE.

Wild-Cat Schemes in the South.

To the Editor: I wish to call the attention of the public to a system of frauds that are now being perpetrated through the West and South, particularly the latter, which comes more particularly under my observation. I think it is the duty of some leading journal to sound a warning note. Hundreds of wild-cat schemes are being gotten up by unprincipled men who are taking advantage of the present attractions of this section to float them. They lay out a few hundred dollars, and getting the confidence, sometimes the co-operation, followed by recommendations, of two or three quite prominent local bankers, they issue bonds ranging from $50,000 to $100,000. This is followed by inducing some New York banker to place the bonds. The originators pocket the larger share of the proceeds and continue the enterprise long enough to give some show of honesty. To my knowledge there are now several enterprizes whose bonds have been sold through some New York banker to such amounts that the investors will in three to five years have to take the property or realize their money at heavy discounts. Besides this, the projectors of these enterprizes often issue stock and place large blocks at 25 and 50 cents on the dollar. These practices injure the best interests of the South and should not be countenanced by those who are honestly working to develop its resources.

PROGRESSIVE SOUTH.

On Saturday last an interesting event took place on the Reading Railroad, a trial trip being made by a compound locomotive just finished by the Baldwin Locomotive Works. This is probably the first compound locomotive built in the United States and is remarkable for the simplicity of its construction, in this respect being in marked contrast with the English compound locomotive now being tried on the Pennsylvania Railroad. This new engine is intended for passenger service on the Baltimore and Ohio Railroad, and in boiler, drivers, truck and general construction is practically the same as other engines for the same service on this road. There are two high-pressure cylinders and two low-pressure cylinders, placed one on each side, the high-pressure vertically above the low-pressure. The pistons of the high and low pressure cylinders work in the same cross-head. The high-pressure cylinders are 12½ inches and the low-pressure 20 inches in diameter. Except for the peculiar appearance, due to the two cylinders on each side, the engine would hardly be noticeable as different from any other. We understand that so far the performance of this engine has been eminently satisfactory.

TRADE REPORT.

Chicago.

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, October 21, 1889.

Pig-Iron.—The demand continues excellent. Large consumers are feeling the market preparatory to placing orders for Car-Wheel Irons. The advanced prices asked for Coke Irons have not checked purchases, but wherever there was the semblance of an option outstanding it has been taken up by consumers. Considerable quantities of Iron are being quietly absorbed by speculators. In Southern Irons No. 1 Foundry and No. 1 Soft are the only grades now in fair supply, the lower grades being very scarce. Ohio Softeners are now sought for, and few furnaces making this class of Iron are not sold up for the next three months. For Bessemer Pig $20.50 is bid and $21.50 @ $22 asked. Quotations are as follows for cash, f.o.b Chicago: Lake Superior Charcoal, $19.50 @ $20; Bessemer, $21.50 @ $22; Local Coke, No. 1, $18.50 @ $19; No. 2, $17.50 @ $18; No. 3, $17; Chicago and Bay View Scotch, No. 1, $19; American Scotch (Blackband), No. 1, $20.20 @ $20.50; Jackson County, No. 1, $18.20 @ $18.70; Hocking Valley Soft, No. 1, $18.20 @ $18.70; Southern Coke, No. 1, $17.25 @ $17.50; No. 2, $16.50 @ $16.75; No. 3, $16.25 @ $16.50; No. 1, Soft, $16.50 @ $16.75; No. 2, Soft, $16.25 @ $16.50; Gray Forge, $16.25 @ $16.50; Mottled, $15.50 @ $16; Tennessee Charcoal, No. 1, $18.75 @ $19.25; Alabama Car-Wheel, $24.25 @ 25.25.

Bar-Iron.—Inquiries are even more numerous than they were a week or two since. They are coming in from all classes of buyers, some consumers being in the market who were thought to have covered their requirements for some months to come. The Mahoning Valley mills are now working up to 1.75¢ at mill as their minimum rate for Common Iron, some of them naming 1.80¢, being evidently well supplied with orders. Local mills are asking 1.85¢ for Common for such orders as they can take, while store prices have been advanced to 2.10¢ as bottom to largest buyers.

Structural Iron.—The contract for the Iron-work of the superstructure of the Leiter Building, which has been under negotiation for some time, was finally secured by Vierling, McDowell & Co. Over 2000 tons of Beams will be required, which will be supplied by Jones & Laughlins. Mill lots are now quoted as follows, f.o.b. Chicago: Angles, 2.35¢ @ 2.45¢; Universal Plates, 2.50¢; Sheared Plates, 2.60¢ @ 2.70¢; Tees, 2.90¢ @ 3¢; Beams and Channels, 3.20¢. Small lots from store are quoted at 2.60¢ for Angles, 3¢ for Tees and 3.70¢ for Beams and Channels.

Plates, Tubes, &c.—Trade is fair, but without special feature. On small lots from store the following prices are named: Iron Sheets, Nos. 10 to 14, 2.80¢ @ 2.90¢; Steel do., 2.90¢ @ 3¢; Tank Iron, 2.70¢; Tank Steel, 2.75¢ @ 2.85¢; Shell Steel, 3¢; Flange, 3.50¢; Fire-Box, 4.25¢ @ 5.50¢; Ulster Iron, 3.75¢; Boiler-Rivets, 4¢ @ 4.25¢. In carload lots manufacturers make the following prices, f.o.b. Chicago: Nos. 10 to 14 Iron Sheets, 2.65¢; Nos. 10 to 14 Steel Sheets, 2.75¢; Tank Iron, 2.55¢; Tank Steel, 2.65¢. On Boiler-Tubes 50 % off is asked for 1¾-inch and less and 55 % off for 2-inch and upward.

Sheet-Iron.—The mills are still full of orders, and 3.20¢ at mill for No. 27 is the common price for any reasonably early delivery. For December and January 3.15¢ is named, but manufacturers' agents insist that lower rates will not be made, as the demand for Roofing and Siding can be depended upon to sustain prices after the turn of the year. Jobbers' prices are firm at 3.40¢ @ 3.50¢ for No. 27, according to quantity.

Galvanized Iron.—Jobbers quote 60 and 5 % off for small lots of Juniata, with a concession to best buyers, while manufacturers have advanced their rates to 62½ % as bottom for Juniata to the heavy trade. A large volume of business is reported in progress.

Merchant Steel.—Consumers seem very willing to pay the advanced rates made on Soft Steel, satisfied if they can only get the material needed. A demand for Billets exists which cannot be met. Carload lots are quoted as follows, f.o.b. Chicago: Spring Steel, 2.50¢ @ 2.60¢; Tire Steel, 2.40¢ @ 2.50; Toe Calk, 2.50¢ @ 2.60¢; Open-Hearth Machinery, 2.40¢ @ 2.50¢; Bessemer Machinery, 2.25¢ @ 2.35¢; Solid Cast Plow Steel, 3.50¢; Open-Hearth Plow Steel, 3¢. From store jobbers quote: Mild Machinery, 2 30¢ @ 2.50¢; Bessemer Machinery, 2.40¢ @ 2.60¢; Open-Hearth Machinery, 2.70¢ @ 3¢; Tire, 2.50¢ @ 2.60¢; Tool, 7.50¢ upward; Sheet, 7¢ @ 10¢.

Steel Rails.—The local manufacturers now ask $34 @ $35 for standard sections. They report a quiet market during the past week and are not looking for a revival of the late active demand for the next 30 to 60 days. Agents for outside mills have had inquiries for some good blocks of Rails for delivery in December and January which they were unable to consider in the present condition of their order-books. Prices of Track Supplies are unchanged from those reported last week, except Spikes, which are working up to 2.20¢.

Old Rails and Wheels.—The only sales of Old Iron Rails reported were of small lots at $25.25 @ $25.50. Some holders refuse bids of $26. The supply seems very limited, but it is surmised that railroads have adopted the policy of offering small lots only, believing that they can get better prices by thus feeding the market, instead of selling their accumulations of Rails in bulk. Old Steel Rails now command $19 @ $20, and buyers are not so discriminating as to lengths, taking anything they can get. A few Old Car-Wheels were sold at $18.75, but $19 is now bid for them, which holders refuse to accept.

Scrap.—Business is good in this line and prices are firm. Dealers' quotations are as follows, per ton of 2000 lb: No. 1 Forge or Railroad Shop, $21; No. 1 Mill, $16; No. 2 Mill, $11; Car-Axles, $25; Fish-Plates, $21.75; Horseshoes, $19.50; Wrought Pipe, $14.50; Cast Machinery, $13; Stove-Plates, $10; Cast Borings, $8.75; Wrought Turnings, $12.50; Axle Turnings, $14.50; Locomotive Tires, $17; Leaf Steel, $17.50; Coil Steel, $16; Mixed Steel, $13; Mixed Country Scrap, $17.

Hardware.—The demand for Shelf Hardware keeps up remarkably. October sales are exceeding those of September, which is very unusual. The advances in the price of coarse goods, such as Strap and T Hinges, Carriage-Bolts, Malleable-Iron products, &c., have impressed retail merchants with the desirability of laying in stocks. Tin and Terne Plates are constantly growing dearer with advancing markets abroad, and jobbers here are experiencing difficulty in securing such stocks as they deem it necessary to carry. Since last spring Bright Plates have gone up at least 50¢ ℔ box and Terne Plates nearly $1 ℔ box.

Nails.—Jobbers report a very satisfactory business in a sort-up way, but with

few carload orders coming along, indicating that their usual carload trade is yet to make its appearance. They quote Cut Nails $2.45 and Wire Nails $2.80 from stock, with 5¢ off for carloads. Manufacturers quote $2.25, at mill, for Cut Steel Nails and $2 60 for Wire Nails. The Wire-Nail makers are now only accepting orders accompanied by specifications, and some of them have withdrawn wholly from the market. The Cut Steel Nail makers are having a good demand again, the smaller jobbers being in the market as buyers.

Barb-Wire.—More Barb Wire has been sold in the past two weeks than for three months previously. Jobbers and manufacturers are alike receiving heavy orders. Prices were advanced here on the 16th to 3.35¢ for small lots of Painted and 3.15¢ for carloads, anticipating the action of the manufacturers' meeting at Pittsburgh on the 18th. The usual difference of 60¢ ₱ 100 lb on Galvanized is firmly maintained.

Pig-Lead.—Sales of 400 tons are reported at 3.70¢ @ 3.75¢, with a weaker feeling at the close, caused by the recent Treasury ruling in favor of Mexican Silver-Lead ores.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, October 22, 1889.

Pig-Iron.—There has been a falling off in business during the past week and the feeling is not so excited; it is evident that a lull has taken place. As producers are nearly all sold ahead from three to six months and consumers have covered their wants to the same extent, a lull was to be expected. Brokers, almost without exception, report that they have no Iron to sell; that the furnaces they represent are sold so far ahead that they are refusing to make additional contracts. There is an entire absence of speculation and the market in this district was never in a better or healthier condition than it is at present, and it will be seen that, although new business has fallen off somewhat, there is no ground whatever for apprehension. Prices as compared with those of a week ago remain unchanged, with a very fair business in the aggregate. We quote prices as follows:

Neutral Gray Forge	$16.50	@ $17.00,	cash.
All Ore Mill	17.50	@ 18.00,	"
White and Mottled	15.00	@ 15.50,	"
No. 1 Foundry	18.00	@ 18.50,	"
No. 2 Foundry	17.00	@ 17.50,	"
No. 1 Charcoal Foundry	18.00	@ 18.50,	"
No. 2 Charcoal Foundry	21.50	@ 22.00,	"
Bessemer Iron	21.00	@ 21.50,	"

Muck-Bar—Has not fully responded as yet to the recent advance in Pig-Iron. There is considerable inquiry, but not at fancy prices. About the only sale of any importance reported was a lot of 2000 tons at $30.25, cash; may be fairly quoted at $30 @ $30.50, cash. Some makers are holding for $31 and refusing to sell for less, but that does not make the market by any means as long as consumers can buy all they want for less.

Spiegel—Is still quoted for immediate delivery at $38 @ $40 for 20 %. In regard to Ferromanganese, while 80 % for immediate delivery is still held at $89 @ $90, no such price can be obtained for future delivery.

Manufactured Iron.—There is a continued good demand for all kinds of Finished Iron, and prices are firm and higher, but manufacturers complain that they are still too low when cost of raw material is taken into consideration and will have to go still higher. We quote as follows: Bars 1.80¢ @ 1.90¢; Plates, 2.30¢ @ 2 35¢; No. 24 Sheet, 2.90¢ @ 2.95¢; Skelp, 1.85¢ @ 1.90¢ for Grooved and 2 15¢ @ 2.25¢ for Sheared, all 60 days, 2 % off for cash.

Nails.—There has been no important change in the situation since our last report. Business is fair, but the demand here appears to be chiefly local. Prices remain unchanged at $2.25, 60 days, 2 % off for cash. While this is a big advance, manufacturers say that at the present price of Nail Slabs they should be $2.50. There is no great demand, nor is it to be expected at this season of the year. Wire Nails have been advanced to $2.65, 60 days, 2 % off for cash.

Wrought-Iron Pipe.—There appears to be no abatement in the demand for Pipe and mills continue very busy, manufacturers being pressed on all sides both with old and new business. Prices are firm at the combination rates. The regular monthly meeting of the Wrought Iron Pipe Association takes place in New York to-day, and it is expected that prices will be advanced. Some manufacturers who have more than they can do are opposed to making any change in prices, while others in position to take new business are strongly in favor of an advance.

Old Rails.—There has been but little done in Old Iron Rails in this market for a couple of weeks. Consumers appear to be pretty well supplied for the present, and are not disposed to anticipate future wants. However, brokers continue to report Rails scarce, and there is nothing in the situation to indicate weakness. May be fairly quoted at $26.50 @ $27. There have been no sales reported as yet above $27. We are advised of sales at $26.75 @ $27 delivered at mill in Mahoning Valley. Old Steel Rails are steady, with sales of short pieces reported at $22. There now appears to be little or no difference between short or long pieces; until quite recently the latter have been bringing the most.

Steel Rails.—Sales have been made here within the week at $33.50, cash, delivered on cars at mill.

Billets, Blooms, &c.—There is a continued good demand for Bessemer Steel Billets, with but few mills in position to take new business, as they are all oversold. We continue to quote at $34.50 @ $35.50 for immediate or near-by delivery. Nail Slabs quoted at $34; Bloom Ends and Rail Crops quoted at $22 @ $23.

Railway-Track Supplies.—Spikes remain unchanged at 2.10¢, 30 days. Splice-Bars have been advanced to 2¢ and Track Bolts are also higher. We now quote at 3¢ with Square and 3.10¢ with Hexagon Nut, cash, free on cars in Pittsburgh.

Old Material.—There is an increasing demand and prices are still tending upward. No. 1 Wrought Scrap, $21.50 @ $22, net ton; Wrought Turnings, $14 @ $14.50; Old Car Axles, $26 @ $27; Cast Borings, $12.50 @ $13, gross; Cast Scrap, $15.50 @ $16; Old Car-Wheels, $19 @ $19.50.

(*By Telegraph.*)

PITTSBURGH, October 23.

Investigation shows that the lull in the Iron trade noted in my report of Tuesday continues—that is, there is an absence of the excitement which has chaaracterized the market for several weeks until within the past few days, but there is no evidence of weakness. While possibly the demand for Pig-Iron, Muck-Bar and Old Rails is not so urgent, there is but little offering, and prices are steady. The two great interests, Iron and Steel, never were in a healthier condition in this district than at present, and while there is a lull, there is an entire absence of apprehension. A rumor is afloat of a sale of 20,000 tons of Bessemer Iron, but it lacks confirmation as yet. Also there is a rumor of a sale of 36,000 tons of Steel Billets, to be delivered at the rate of 3000 tons a month for one year, but this, like the other, lacks confirmation. Sales of No. 1 Wrought Scrap-Iron are reported at $22, net ton, the highest price yet reported.

Louisville.

LOUISVILLE, KY., October 21, 1889.

Pig-Iron.—The market has been active during the entire week and Iron has been purchased rapidly as fast as offered. Prices have remained about the same, though toward the close of the week there was a slight advance on some grades of 25¢ a ton. Consumers generally are willing to pay the difference asked, as they find but little trouble in placing their finished product at figures that will enable them to pay more for the raw material. A general feeling of confidence exists in all branches that prices are to continue firm and possibly show a slight advance during the remainder of the year, which will permit of buying for delivery during the next 60 or 90 days with fair prospects of an advance being realized on the purchases made. The demand for Iron by parties who wish it for actual consumption has been very great. Foundry men of all descriptions have been in the market. Speculators also have thought it advisable to buy, and there has been a sharp demand for warrant Iron which has been sold as freely as offered:

Southern Coke, No. 1 Foundry (new classification)	$15.50	@	$16.00
Southern Coke, No. 2 Foundry (new classification)	15.00	@	15.50
Southern Coke, No. 3 Foundry (new classification)	14.50	@	14.75
Gray Forge	14.00	@	14.25
White and Mottled, different grades	13.50	@	13.75
Silver Gray, different grades	14.25	@	15.25
Southern Charcoal, No. 1 Foundry	17.00	@	17.50
Southern Charcoal, No. 1 Mill	15.50	@	16.00
Southern Car-Wheel, standard brands	22.50	@	23.50
Southern Car-Wheel, other brands	18.75	@	21.25
Hanging Rock Coke, No. 1 Foundry	16.25	@	16.75
Hanging Rock Charcoal, No. 1 Foundry	21.25	@	21.75
Hanging Rock, Cold Blast	21.50	@	23.50

(*By Telegraph.*)

There has been no change in the market since my mail report.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, October 21, 1889.

Pig-Iron.—It would be quite difficult now to give a correct diagnosis of the condition of the market. Producers are quite reticent in making quotations for future deliveries. In the first place, it is almost impracticable to name any definite time in the future when they will deliver Iron on cars, for the question of getting the cars to load is now very uncertain. Then, gauging the future by the past month or two, prices are liable to advance a few points in the near future. Besides this, any producer who might have Iron to sell and ready for immediate delivery, all they have to do is to fall back on the storage-warehouse system, which is always convenient at their door, put in their Iron, get their warrant and they can get money in a few days. This business is now being resorted to to a considerable extent and is no doubt one reason of the recent advance in prices. Sales are now exceptional at present quoted figures excepting to some old and reliable customers. When new buyers come in the field an advance of 25¢ @ 50¢ is generally asked and in most cases accepted. During the past week quite a ripple was created with some of our furnaces by sales made by some of our Northern agents at an advance of 25¢ and 50¢, and in one case of 75¢ above the outside figures that their principals had authorized them to sell at. An analysis of their feelings toward the condition of the market is not difficult to arrive at. Notwithstanding

all these conditions, nearly all the Southern producers are opposed to further advance in the market. A few of them express a desire that an advance of $1 would be desirable, but nearly all of them are satisfied with present prices and deprecate any further advance.

(By Telegraph.)

Iron is advancing; 1000 tons No. 3 sold at $13, net, at furnace, no commission; 2000 tons No. 3 at $13.25, same terms. Furnaces are using the warehouse system largely. It is difficult to make purchases except at an advance.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St. }
PHILADELPHIA, Pa., October 22, 1889. }

Pig-Iron.—Prices are nominally the same as last week, but it is almost impossible to place orders, so that practically there is no Iron for sale. A buyer of either good Mill Iron or good No. 1 Foundry might apply to almost any of the leading sellers and be met with the reply that they were sold to close up; that they were not in a position to quote on any additional business. But this, although literally true, would not be a fair indication of the position, because nine-tenths of the leading consumers made ample provision for this year's requirements some time ago. The correct inference would probably be that makers expect to get more money when current engagements are completed, but they are not decided how much the advance should be, hence the determination to wait the course of events during the next three or four weeks before definitely fixing their prices. This is undoubtedly the safest plan and one that should be satisfactory to all concerned. Producers in this vicinity feel that they are in a position to meet all legitimate consumptive demands, but they are not willing to incur the risk of advancing prices prematurely or of placing the figures out of proportion to those ruling elsewhere. If prices can be maintained in the Western markets an advance of $1 ℔ ton over to-day's nominal prices ought to be secured here, while in the not altogether improbable event of a still further advance in the West $1 would hardly be sufficient for this market. Hence, while there is no first-class Iron seeking a buyer, there is just about enough to keep them from feeling uneasy because of its scarcity. To-day's prices (which, however, are more or less nominal) range from $15.50 to $16, delivered, for Gray Forge, $16.50 @ $17 for No. 2 and $18 @ $18.50 for No. 1. Occasional lots may be picked up at a little less money, but they are not a fair indication of the market, and an advance of 50¢ ℔ ton on good Irons, January delivery, would doubtless be satisfactory to the majority of consumers. Southern Irons are not offered, although bids of about $17 75 for No. 1 or $16.75 for No. 2 would probably attract the attention of sellers.

Foreign Material.—Sales of 80 % Ferromanganesse have been made at $84 for prompt delivery, while lots for spring shipment are offered at about $1 less money. Bids of $33.50 are made for 20 % Speigel, last sale having been at a trifle over $32.50, c.i.f., duty paid. Holders ask $34 for 20 % Speigel and $80 for 70 % Ferro.

Blooms and Billets.—It is still very difficult to get quotations for early deliveries, although if the order is not a large one it may be possible to pick up an occasional lot at quoted rates. But the feeling is very feverish, and prices not to be depended on for more than 24 hours at a time. To-days' prices are about as follows: $34 @ $35, delivered, for Nail Slabs; $34 @ $35 for Sheet or Tank; $37.50 @ $39 for Shell; $40 @ $42 for Flange, and $42 @ $43 for Fire-Box; Charcoal Blooms, $52 @ $54; Runout Anthracite, $42.50 @ $43.50; Scrap Blooms, $32.50 @ $33.50 ℔ "Bloom" ton of 2464 lb

Muck-Bars.—The market has been a little irregular during the week and prices somewhat inclined to "sag off." One sale of 1000 tons was made at $29, delivered, with a small freight; another, of 1200 tons, with a slightly heavier rate, and several small lots at about $30, delivered. Prices to-day are a little steadier, with $29 at mill as a very inside figure, some holding for $29.25 @ $29.50 at mill.

Bar-Iron.—The movement has not been quite as active as in some specialties, but prices have been firmly maintained. A few small mills in the interior have been hunting up business, and have had more or less influence in checking any tendency toward further advances. The leading mills are full of work, however, and are not quoting less than 1.85¢ @ 1.90¢ at mill, while some are firm at 1.95¢ and are getting that figure on all new business. A meeting of the Bar manufacturers is to be held to-morrow at the Continental Hotel, at which important matters are expected to be taken into consideration. Skelp-Iron is dull, although one or two small lots have been taken at 1.82½¢ for Grooved.

Plates.—A continued heavy demand is reported from all sources and for all sizes and qualities. The demand for structural work and ship-building is especially heavy, and prospects in these branches are such as to give assurance of continued activity for a long time to come. Prices are firm along the entire line, but not materially different from those given a week ago, viz.: 2.20¢ @ 2.25¢, delivered, for Ordinary Iron Plates and Tank Plates; 2.25¢ @ 2.30¢ for Universal Plates; Shell, 2.5¢ @ 2.6¢; Flange, 3.25¢; Fire-Box, 3.75¢ @ 4¢; Steel Plates, Tank and Ship Plate, 2.40¢ @ 2.50¢; Shell, 2.75¢ @ 2.8¢; Flange, 2.9¢ @ 3¢; Fire-Box, 3½¢ @ 4¢.

Structural Material.—There is no special change in this department. There is business on hand to last for some time to come, while inquiries for new work are of unusual importance. The general position is therefore all that can be desired, and manufacturers feel very confident in regard to the course of business during the winter and spring months. Prices are unchanged for Iron, as follows: Bridge Plate, delivered, 2.25¢ @ 2.30¢; Angles, 2.20¢ @ 2.25¢; Tees, 2.7¢ @ 2.8¢; Beams and Channels, Iron or Steel, 3.1¢; Steel Plates, 2.4¢ @ 2.5¢, delivered, and Steel Angles, 2.30¢ @ 2.35¢.

Sheet-Iron.—There is a continued good demand for both light and heavy Sheets, and prices are very firm, as quoted a week ago. The trade would not be surprised to see higher prices before long, as stocks are low and the demand unusually large. Carload lots are quoted about as follows:

Best Refined, Nos. 14 to 20	3¢
Best Refined, Nos. 21 to 24	3.20¢
Best Refined, Nos. 25 to 26	3.40¢
Best Refined, No. 27	3.50¢
Best Refined No. 28	3.60¢
Common, ¼¢ less than the above.	
Best Soft Steel, Nos. 14 to 20	3⅜¢
Best Soft Steel, Nos. 21 to 24	3⅝¢
Best Soft Steel, Nos. 25 to 26	3⅞¢
Best Soft Steel, No. 27	4⅛¢
Best Bloom Sheets, ¼¢ extra over the above prices.	
Best Bloom, Galvanized, discount	65 %
Common, discount	67½ %

Steel Rails.—The market is very firm at $32 at mill for large orders. Small lots command about $32.50, and orders of this class are quite numerous. Mills are full of work for the next three or four months, and prospects are in all respects satisfactory, both as regards price and demand.

Old Rails.—The market is a little unsettled, and prices are too irregular to quote with strict accuracy. Sales during the week have been made at as high as $27 for American Rails delivered at mills, but $26 @ $26.50 is said to be about buyers' price to-day. Foreign Rails for shipment can be had at $25, but buyers are not showing much interest in the market at present, although spot lots would be taken pretty freely at about the figures above named.

Scrap-Iron.—There is quite a scarcity of good Scrap, under which during the week prices have advanced nearly $1 ℔ ton. Sales at about the following prices: No. 1, $22 @ $22.50 for carload lots, delivered; or for choice, $23; No. 2 do., $15 @ $16; Turnings, $14 @ $15; Old Steel Rails, $18 @ $20; Cast Scrap, $15 @ $16; do. Borings, $9.50 @ $10; Old Fish-Plates, $26 @ $27.

Nails.—The demand is large and the market very firm. Sellers are rather disposed to hold off and await developments, as indications point to an advance in Iron as well as Steel Nails. Meanwhile prices are about $2.10 for lots from store and $2 for carload lots, but an early change in quotations will doubtless be made.

Wrought-Iron Pipe.—There is a continued good demand for Pipe without any changes in prices. Discounts as follows: Butt-Welded Black, 50 %; Lap-Welded Black, 62½ %; Butt-Welded Galvanized, 42½ %; Lap-Welded Galvanized, 50 %.

Cleveland.

CLEVELAND, October 21, 1889.

Iron-Ore.—The persistent and apparently unwarranted demand of the vessel men for higher rates is injuring the market. Many of the charters have expired and a combination among the vessel-owners is feared. The Ashland rate has advanced to $1.85, the Marquette rate to $1.50 and the Escanaba rate to $1.30. These prices for transporting Ores are discouraging to shippers, and will have a considerable effect on the amount of Ore forwarded this season. Already one or two conditional contracts have been canceled, and the indications are that but a very few thousand tons of Ore in excess of the actual sales will be shipped. The inquiry for Ore is, however, continued, and scattering lots varying in quantity from 800 to 2000 tons are eagerly taken. Ore is still coming down the lakes at a lively rate, over 210,000 tons having been unloaded at lower lake ports during the past week. The total shipments to date exceed 6,000,000 tons, as compared with 4,950,000 tons at a corresponding period last year.

Pig-Iron.—Prices still maintain an upward tendency, while the market retains all the elements of firmness noted during the past two or three weeks. The sale of a round lot of Mill Iron at $17.25, cash, at the furnace and of 500 tons of Bessemer at $20.50 is reported; both amounts to be delivered immediately. Inquiries for Iron for future delivery are numerous enough, but as the furnaces have enough work on hand to keep them engaged during November and December there seems no disposition to quote prices for Iron for next year's delivery. The demand for all grades of Iron, but for Bessemer, Mill and American Scotch particularly, is enormous and considerably in excess of the capacities of the furnaces.

Coke.—The railroads are still unable to supply sufficient cars to bring the Coke forward in the quantities desired, but there has been an improvement and more cars are promised soon. The price is still $1.50 at the ovens.

Nails.—There has been a sharp advance of 25¢ ℔ keg in both Steel and Steel-Wire Nails and the market is very firm at the higher figures.

Scrap-Iron.—A small lot of Old Americans sold during the week at $26.25 and a 700-ton lot at $26. Old Wheels are not in great demand.

Manufactured Iron.—Common Bar has advanced to 1.75¢. Small Channels and Heavy Plates are in active demand.

Cincinnati.

Office of *The Iron Age*, Fourth and Main Sts. } CINCINNATI, October 21, 1889. }

Pig-Iron.—Another active week has been experienced in the market for Pig-Iron and a strong tone has prevailed, with full prices realized. Less excitement, however, has attended the transactions and possibly less buoyancy. Shortly after our last review the market wavered, followed by a further advance, and again it settled. But the market has gained rather than lost by the little reactions, being in a more healthful condition, and the advance already secured is probably more stable by reason of the settling process. A further material advance would not be strange before the close of the year, and the fact that those who were sellers a week ago are now buyers may be an index to the future, but, of course, no man's judgment is infallible. Many large buyers have secured supplies and retired, but the aggregate orders from smaller concerns make a very considerable amount, probably enough to hold if not to elevate the market before the entrance of larger consumers. At the close the market is firm, but there is 25¢ difference in the view of the market between buyers and sellers. Car-Wheel Iron has been more active, with larger sales of both Northern and Southern production, but Gray Forge has continued the feature of most interest. Mottled Iron has been very scarce and wanted at full prices. Foundry grades have been quite firm, but a shade less strong than Forge Iron. Among the sales are 2000 tons Southern Car-Wheel at $23.50; 1500 tons do. at $23.75, cash; 2000 tons Lake Superior Car-Wheel at $20.65 cash, here—the furnace now demands $21; 500 tons No. 2 Foundry at $15.75; 1000 No. 3 do. at $15.25; 2000 tons No. 2 Soft Foundry at $15; 500 and 1000 tons Gray Forge (Southern) at $15; 800 tons do. at $15.25. Mottled Iron is quotable at $14.25 @ $14.50, with small sales at these prices. A number of sales of Gray Forge have been made of which no account has been taken, but those given are a fair index of the market. Most sales are made for November and December delivery, but a few extend through January. Lake Superior Iron sold for delivery beginning in October. The current prices here at the close, cash, f.o.b., are as follows:

Foundry.	
Southern Coke, No. 1	$16.00 @ $16.25
Southern Coke, No. 2	15.50 @ 15.75
Southern Coke, No. 3	15.25 @ 15.40
Ohio Soft Stone Coal, No. 1	17.00 @ 17.50
Ohio Soft Stone Coal, No. 2	16.00 @ 16.50
Mahoning and Shenango Valley	16.50 @ 17.00
Hanging Rock Charcoal, No. 1	20.00 @ 22.00
Hanging Rock Charcoal, No. 2	19.00 @ 21.50
Tennessee and Alabama Charcoal, No. 1	18.00 @ 18.50
Tennessee and Alabama Charcoal, No. 2	17.00 @ 17.50
Forge.	
Gray Forge	15.00 @ 15.25
Mottled Neutral Coke	14.25 @ 14.50
Car-Wheel and Malleable Irons.	
Southern Car-Wheel	23.00 @ 24.00
Hanging Rock, Cold Blast	22.00 @ 25.00
Lake Superior Car-Wheel and Malleable	20.00 @ 21.00

Manufactured Iron—Has continued strong, with the mills and machine-shops busy, and the tendency is toward higher prices.

Nails—Have sold well and prices have advanced. Iron and Steel Nails, 12d to 40d, sell at $2.35 ℔ keg, with 10¢ rebate in carload lots, at the mills. Steel Wire Nails sell at $2.70 for 60d.

Old Material.—There has been a good demand and a strong market for Old Rails with sales on the line of the C., H. and D. at $26.25, and $26.50 is now bid, with few obtainable even at $27; sales were made on the line of the O. and M. at $25.50. Old Wheels have been neglected and prices are nominal at $19, cash.

St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st., } ST. LOUIS, October 21, 1889. }

Pig-Iron.—The firm tone of the market continues, and notwithstanding a slight falling off in the demand during the early part of the week, there was no intimation of any weakness in the matter of prices, and now that the trade has began buying afresh a hardening tendency is specially noted, and prices show a clean advance of from 5¢ to 50¢ ℔ ton over the figures quoted one week ago. A number of good-sized orders were placed during the week under review, and there are inquiries enough in the market to keep the furnaces steadily employed for some time. Lake Superior Car-Wheel is rapidly coming to the front and assuming a leading position as a seller, and fully one-half of the Iron sold during the past ten days was of this class. Wisconsin Charcoal Iron is also selling quite freely, and it is reported there is somewhat of a scarcity of this grade of Iron, as the furnaces are all sold up to the first of the year and are not in a position to ship as promptly as is desired. Consequently prices have been advanced and buyers who have been waiting for a slump in prices are placing their orders, evidently believing that values are more likely to increase than otherwise. For ordinary-sized lots we quote as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	$16.50 @ $16.75
Southern Coke, No. 2 Foundry,	15.75 @ 16.00
Southern Coke, No. 3 Foundry,	15.25 @ 15.50
Gray Forge	15.00 @ 15.25
Ohio Softeners	18.00 @ 19.00
Lake Superior Charcoal	21.00 @ 21.50
Missouri.	
Charcoal Foundry, No. 1	17.25 @ 17.75
Charcoal Foundry, No. 2	16.25 @ 16.50
Tennessee.	
Charcoal Foundry, No. 1	18.25 @ 18.50
Charcoal Foundry, No. 2	17.25 @ 17.50

Connellsville Coke, f.o.b. East St. Louis, $5; St. Louis, $5.15.

Bar-Iron.—The demand keeps up and mills have all they can do to handle orders promptly. Prices are firm and steady at about as follows: Lots from store, 2¢; carload lots from mills, 1.85¢, delivered at East St. Louis.

Barb-Wire.—The demand is daily increasing and mills are kept steadily employed. The cost of raw material continues to increase, and mills have been compelled to again withdraw all quotations, and under date of 17th inst. issued a new list, to go into effect at once, which we quote as follows, f.o.b. St Louis, 60 days, or 2 % off for cash 10 days: Painted, in small lots, 3.25¢; Galvanized, 3.85¢; carload lots Painted, 3.15¢; Galvanized, 3.75¢. These prices show an advance of 50¢ ℔ cwt. during the past six weeks, and as raw material shows a greater increase in cost it is only reasonable to assume that these figures will only be temporary, and further advance in the price of Barb-Wire seems quite probable.

(By Telegraph.)

Pig-Iron continues to gain strength and inside figures are as follows, for cash, f.o.b. St. Louis: Southern No. 1 Foundry, $16.50; No. 2, $16.25; No. 3, $15.75; Gray Forge, $15.25. Barb-Wire holds firm at advanced quotations. Bar-Iron is quoted from mill 1.92½¢.

Detroit.

WILLIAM F. JARVIS & CO., under date of October 21, say: The market still continues very active, with considerable excitement exhibited by both buyers and sellers at certain points, although the steadily advancing market here, with no very sudden jumps seen during the past week, has tended to no great excitement such as we note is reported from the Pittsburgh market recently. It is a very difficult thing indeed, with present orders, to get deliveries anywhere near as fast as buyers desire them. The hesitation to name prices for deliveries next year has caused some anxiety on the part of consumers, nor do we think that this feeling will be materially altered until the Ore men have named to some extent their prices for opening deliveries in 1890. Lake Superior Charcoal has continued in active demand, with prices varying considerably, and while the market with some furnaces has been $20 here, we have heard of one sale of a fairly good Iron at considerably below this figure. It is now thought that with the close of navigation the scarcity of this grade of metal can be more easily seen and prices advanced proportionately. The market to-day is as follows, although some of the figures are nominal:

Lake Superior Charcoal, all numbers	$20.00 @ $20.50
Lake Superior Charcoal Bessemer	20 50 @ 21.00
Lake Superior Coke, all ore	19.00 @ 19.50
Lake Superior Coke, cinder mixed	18.25 @ 18.75
Standard Ohio Blackband	19.00 @ 19.50
Southern No. 1	18.25 @ 18.75
Southern Gray Forge	16.00 @ 16 25
Southern Silvery	16.50 @ 17.00
Jackson County (Ohio) Silvery	18.25 @ 18.75
Old Car-Wheels	19.00 @ 19.75
Old Iron Rails	25.50 @ 26.00

New York.

Office of *The Iron Age*, 66 and 68 Duane street, } NEW YORK, October 23, 1889. }

American Pig.—Last Friday the Thomas Iron Company announced an advance of $1 ℔ ton on Foundry Irons. This, however, applies only to the contract price on contracts made with customers last March and practically restores the values then established In May the price was reduced $1.50. In August an advance of 50¢ was declared, and now the other part of the May reduction is recalled. The advance goes into effect on November 1 and applies to all Iron not delivered at that date up to the end of the year. The books for next year have not been opened. With stocks 18,000 tons lower than they were at the same time last year the Thomas Iron Company are practically out of the market so far as any new business is concerned. The market here is moderately active, with prices firm. We quote No. 1 Anthracite Foundry, at tide-water, $17.50 @ $18.50; No. 2, $16.50 @ $17.25; Southern No. 1 is available at $17.25 @ $17.75. The Canadian market has lately assumed some importance, the high prices in England causing our neighbors to turn to this country. Similarly Mexico has been looking in this direction, a small lot of 200 tons having been taken recently. Of course these movements are exceptional, growing out of the relatively much greater advance in England than here. A Pittsburgh report mentions a sale of 10,000 tons of Lehigh Bessemer, January delivery, at $21.50, and offers to sell future lots at that price. Rumor has coupled the transaction with one of the companies who do not make any Bessemer Pig. There has been some increase in the speculation in Pig-Iron at the Metal Exchange, due partly to the fact that some brands have been added to the list of those deliverable on contract, including Reading. The aggregate sales during the week were 3100 tons.

Spiegeleisen and Ferromanganese.—Sales from second hands and by importers aggregating about 6000 to 7000 tons of 20 % Spiegel have been made, including one lot of 1000 tons at $32.50, while the others brought as high as $33.25. The bulk of the material was taken by an Eastern Nail mill, for delivery running from December to June. Offers to sell Ferromanganese made by importers have been promptly taken up and several hundred tons have been sold for delivery during the winter. Prices are irregular, importers quoting at the close $85 @ $87.50, with little stock available.

Billets.—No business of any consequence is reported and quotations are entirely nominal, so far at least as any large blocks are concerned. Some mills ask $35 for Billets and Slabs.

Wire-Rods.—Foreign No. 5 is nominally $50 @ $51. A lot of domestic of 500 tons, the last one placed, fetched $46 at a Western mill. Quotations are now $49.50 @ $50 at tide-water.

Manufactured Iron and Steel.—We note a sale of about 800 tons of Ship-Plates, with other business pending. The market is strong, with a heavy run of orders. We quote as follows, on dock: Angles, 2.25¢ @ 2.40¢; Tees, 2.6¢ @ 2.7¢; Beams and Channels, 3.1¢. In Plates, Steel Tank is 2.4¢ @ 2.5¢; Ship, 2.5¢ @ 2.6¢; Shell, 2.75¢ @ 2.9¢; and Flange, 3¢ @ 3.10¢; Fire-Box, 4.25¢ @ 4.40¢. For Bars we quote: Common, 1.7¢; Medium, 1.75¢ @ 1.85¢, and Refined, 1.85¢ @ 2¢. Hoops, 2.1¢ @ 2.2¢. Galvanized Sheets, 65 and 2½ %.

Merchant Steel.—We quote: Machinery, Finished, 2.25¢ @ 2.3¢; Shafting, 2, to 4 inch, 2.15¢; Tire, 2.25¢ @ 2.30¢; Sleigh-Shoe, 1.95¢ @ 2¢, and Spring Steel, 2.45¢ @ 2.5¢, all delivered.

Steel Rails.—The market is quiet, East and West. The only sale reported is a lot of 20,000 tons taken by the New York Central, whose requirements it does not, however, fully cover. A careful inquiry in the trade indicates that the aggregate sales for 1890 delivery, East and West, thus far cannot be less than 750,000 tons, if indeed it is not more. Prices at Eastern mill remain at $31.50 @ $32.

Track Material.—Some large orders are pending, among them one of Angle-Bars, for a trunk-line road. Steel Angles continue 1.95¢ @ 2¢, delivered, or cheaper than Iron. Spikes are $2.20 @ $2.25, delivered.

Old Rails.—The movement is small, although there are inquiries in the market for large lots distributed over long delivery. Buyers and sellers are too far apart for any business of consequence, so that the only transactions reported on a moderate scale are speculative and among dealers. We quote nominally $24.50 @ $25 for Tees.

Naylor & Co., who moved into their present quarters, 99 John street, on May 1, 1840, or nearly 50 years ago, will next week transfer their New York offices to the United States Trust Company's building, 45 Wall street.

Coal Market.

Three meetings of Coal operators and dealers held during the week had little effect to galvanize the trade and put it in better shape. Dullness is still the general complaint where the amount of business done is contrasted with the activity of former seasons. First, there was a meeting of the principal sales agents on Tuesday at the Pennsylvania Coal Company's office, with no other result than an understanding that the output for November shall be 3,000,000 tons. Respecting prices no change was made, conservative members of the trade apparently thinking that nothing better could be expected than to reach and maintain those of the latest schedule. It is notorious that these latest figures are scarcely approached. For Stove Coal a common price is $4, f.o.b., or 40¢ below the circulars, and sales have been made as low as $3.90. Chestnut is easy at $3.75 @ $4. Egg, too, was never so easy at this time of the year. Pea can be bought at $2 and less, but $2 is about the ruling price, f.o.b. Broken is about $3.75. The Western Coal agents decided to make no advance.

Bituminous Coal is in demand at $3.25 f.o.b., and $3.50 alongside. Lack of cars causes much embarrassment, restricting shipments. The Seaboard Association convened in Philadelphia on Tuesday and discussed the situation with reference to the coming year and the practicability of maintaining the organization effectively. It is understood that a committee was appointed to devise measures. It is reported that Soft Coal shippers have decided to provide their own cars. Cumberland shipments for the week were 66,500 tons.

President Harris, of the Lehigh Coal and Navigation Company, announces that $1,267,000 of new stock will be issued to provide for extensive improvements completed or in progress.

It is reported in Philadelphia that the Reading Railroad Company, believing that the Anthracite Coal market in this country is growing more and more restricted, are about to seek a market in Europe by sending over large sample lots and endeavoring to popularize the use of Anthracite.

The official statement of the output of Anthracite Coal for the year ended September 30, 1889, gives the production at 25,587,290 tons, a decrease of 1,948,325 tons. The stock of Coal on hand at tide-water shipping points September 30, 1889, was 877,237 tons, and on August 31, 1889, 795,749 tons, an increase of 81,488 tons.

The Beech Creek Railroad officials are looking over the ground preliminary to making surveys for extending their tracks into Williamsport, Pa.

A Pittsburgh special says that the price of Coke is advancing in the Ohio Valley owing to the inability of the railroads to furnish cars for its shipment. The Frick Coke Company have about 35,000 tons of Coke in their yards.

The strike of the Illinois Coal-miners has ended after six months of idleness, the men gaining an advance of 2½¢ a ton.

Metal Market.

Copper.—The London market did not vary for the week from £42. 17/6, spot, and £42. 5/ futures; sales 275 tons. Nothing of special interest has transpired in our own market, where the consumptive demand has made satisfactory headway at 11¢ for Lake and 9¾¢ @ 10¢ Casting brands.

Tin.—Spot Tin improved in the London market during the week from £91. 2/6 to £91. 5/ last night, and futures from £91. 15/ to £91. 17/6; sales 860 tons. Here the fresh supplies arrived and afloat have been crowded upon consumers rather too fast, and some notable decline might have resulted therefrom, but for the fact that consumption continues unabatedly liberal. The sales made sum up 150 tons at 20.85¢, spot; 20.70¢ @ 20.80¢, October; 20.15¢, December; 20.45¢, January; 20.45¢, February and 20.60¢ to 20.70¢, afloat, the tendency at the time being slowly downward. This morning an advance of 10/ for spot in London causes a slight rebound, spot now being held at 20⅞¢ @ 21¢, after a sale of 20 tons October at 20¾¢ and 10 tons November at 20.55¢.

Tin-Plates.—The Tin-Plate market has experienced a further advance under the stimulus of higher prices on the other side. Any lots offering under current rates are readily picked up, but dealers are very chary about giving quotations for any quantity. The English market is very excited, and prices advance daily, Cokes being up to 15/3. We quote at the close, per box: Siemens-Martin Steel, Charcoal finish, $5.25 @ $6.00; Coke finish, $4.90 @ $5.00; Ternes, $4.45 @ $4.75; Coke Tins, Penlan grade, $4.60 @ $4.70; J. B. grade, $4.80 @ $4.90, and Wasters, $4.50.

Lead.—The conclusion arrived at by the trade is that under Mr. Windom's decision a great deal more Mexican Ore will be let in than has lately been the case, and that in two or three months from now we shall be getting as much of it as ever before, hence the 1000 tons that were sold in the open market during the week sold from 3.90¢ down to 3.75¢, the closing figure.

Spelter.—The market has been very dull and only about 100 tons prime Western were sold at 5.10¢, while ordinary ditto is not worth over 5.05¢, Silesian being quoted 6¼¢ nominally.

Antimony.—There is a good demand and hardly any available supply at 18½¢ Hallett and 20¼¢ Cookson. Crude Antimony Ore stood £12. 10/ a year ago; it is now £42, February and March shipments.

New York Metal Exchange.

The following sales are reported:

16 tons Lead, November	3.90¢
32 tons Lead, December	3.95¢
25 tons Lead, December	3.95¢
25 tons Tin, January	20.45¢
25 tons Tin, February	20.45¢
25 tons Tin, October	20.80¢
FRIDAY, October 18.	
10 tons Tin, December	20.45¢
10 tons Tin, spot	20.85¢
10 tons Tin, afloat, per steamship Canada	20.60¢
25 tons Tin, afloat, per steamship Greece	20.70¢
20 tons Tin, October	20.70¢
200 tons Iron, January	$17.50
SATURDAY, October 19.	
114 tons Lead, November	3.85¢
66 tons Lead, December	3.85¢
200 tons Lead, spot	3.80¢
100 tons Iron, February	$17.75
MONDAY, October 21.	
16 tons Lead, January	3.87½¢
10 tons Tin, afloat, per steamship Canada	20.40¢
500 tons Iron, November	$17.50
500 tons Iron, December	17.50
500 tons Iron, January	17 62½
100 tons Iron, January	17.75
TUESDAY, October 22.	
400 tons Iron, October	$17.50
10 tons Tin, spot	20.70¢
WEDNESDAY, October 23.	
20 tons Tin, October	20 75¢
30 tons Tin, November	20.55¢
10 tons Tin, December	20.45¢
10 tons Tin, November	20.50¢
10 tons Tin, December	20.50¢
10 tons Tin, January	20.50¢
500 tons Iron, December	$17.50
100 tons Iron, November	17.37½
200 tons Iron, November	17.50

Financial.

The enormous crops and rapid development of industrial enterprise in various directions make their influence felt in almost all departments of trade. Railroad earnings keep up remarkably well, showing that the movement of freight is general. In breadstuffs and wheat alone is there anything like depression. For corn prices this week reached the lowest point on record. The first of the new crop has been received in Chicago. Wheat is pressed for sale, and the export demand is disappointing, the whole market sagging under accumulating stocks. Exporters of flour suffer from the lack of freight room. Shipments of provisions are exceptionally large. In general merchandise there is a somewhat quickened movement in anticipation of the close of navigation. In dry goods the new season has opened successfully, but the low prices contrasted

with the relatively high cost of raw material excites remark. In groceries there is complaint of over-trading. Sugars continue on the down grade. In Louisiana the grinding season is just opening. Copper is firm. Spot cotton quiet but steady.

The stock market was irregular. Northern Pacific tumbled 3½ % simultaneously with the announcement that Mr. Villard's scheme for a blanket mortgage of $160,000,000 had just been affirmatively voted by more than the required three-fourths of the preferred stock, while the coalers were strong on the report of an intended advance in the prices of coal. On Friday the fact transpired that application had been made at Trenton, N. J., by a corporation known as the American Cotton Oil Company for an increase of capital to $20,000,000, with the probable design of succeeding the trust, the certificates to be exchangeable share for share. On Saturday the trusts were a leading feature and more active and irregular. Cotton-oil was bought heavily by a few prominent houses. On the appearance of the bank statement its unexpectedly favorable character encouraged buying of all the leading stocks, and the market closed strong. On Monday the tone was weak, influenced by bear attacks, in which the Lead Trust suffered and sugar more severely still. It was affirmed that the Havemeyer interest in Sugar Trust had been practically sold out, with other evidence of pretty general liquidation by original holders. On Tuesday the market was strengthened by easier money, two large banks loaning freely at 7 %. F. W. Roebling, secretary and treasurer of John A. Roebling's Sons & Co., says the Barbed-Wire Trust will be formed and predicts success. The Mexican Government bonds supposed to have been stolen have been found. The coal agents in this city made no change in prices.

United States bonds were quoted as follows :

U. S. 4½s, 1891, registered	105½
U. S. 4½s, 1891, coupon	105½
U. S. 4s, 1907, registered	127
U. S. 4s, 1907, coupon	127
U. S. currency 6s	117

The rates of foreign exchange are verging on the importing point. Brown Bros. & Co. reduced their posted figures for sterling to $4.82 and $4.86½ for 60 days and demand bills. This is mainly owing to the dearness of money here and its comparative cheapness in London. Another cause is the free offering of commercial bills drawn against exports of cotton, &c., as well as the export of securities to Europe.

Money has again been an important factor in the transactions of the week, primarily due to the active demand for currency from various points in the interior, the movement of grain and cotton being quite extraordinary in volume, so that speculative enterprises of all sorts have been severely crippled, and for like reasons merchants have felt the monetary pressure, though in a lesser degree. In the effort to husband their resources the banks have limited their accommodations to the urgent wants of customers and loans in several instances have been disturbed. Only choice collaterals were accepted by banks and trust companies and nothing was done below 6 %. Time loans to large customers are quoted 6 @ 7 %. Outside rates are quoted 8 %. The weekly bank statement was favorable, showing an increase of $1,625,275 in the surplus reserve, thus recovering the deficit of the reserve below the standard 25 % and leaving a surplus reserve of $917,250, which puts the banks in nearly as good a position as at this time last year, when the average rates for call loans at the Stock Exchange were 1½ to 2½ % through the week, against 8 @ 20 during the week just past.

The exports of breadstuffs, provisions, cotton and petroleum in September increased from $33,565,403 last year to $43,921,031, and for nine months, $60,000,000. The value of the exports of breadstuffs fell from $12,758,169 last year to $9,874,788, the loss being chiefly in wheat and flour. Notwithstanding the heavy increase in the number of bushels of corn, the value is below last year. The value of provisions also fell off. The improvement in cotton and petroleum was great enough to make up the loss in breadstuffs and the increase above mentioned. Cotton alone is $9,000,000 above last year in the month, and all the items for nine months are ahead of last year.

Imports at New York for the week are valued at $10,164,000 and the exports $7,023,000. The specie exports were $500,000.

A national silver convention will assemble in St. Louis on November 26.

Brooklyn's new financial institution, the Kings County Trust Company, opens with satisfactory prospects.

The executive council of the American Bankers' Association rejected President St. John's proposal to recommend the coinage of $4,000,000 in silver every month.

Imports.

Hardware, Machinery, &c.

Boker, Hermann, Arms, cs., 28
Corbiere, Fellows & Co., Mach'y, cs., 7
Downing, R. F. & Co., Mach'y, pcs. and pkgs., 26
Folsom Arms Co., H. & D., Arms, cs., 14
Frasse, P. A. & Co., Mdse., cs., 9
Gardner Bros., Mach'y, cs., 5
Kastor, Ad., Mdse., cs., 3
Lawson & Co., Hdw., cs., 9; do., ck., 1
Leggett, F. H. & Co., Oil Stoves, cs., 1349
Newton & Shipman, Files, cs., 2
Pitt & Scott, Mach'y, cse., 1
Taylor, Thos., Mdse., cs., 5
Schoverling, Daly & Gales, Arms, cs., 28
Sheldon, G. W. & Co., Guns, cs. 6
Thebaud Bros., Mach'y, pcs., 12
Vicini, J. B., & Co., Mach'y, bxs., 7; do., pcs., 8
Ward, Jas. E. & Co., Anchors, 85
Webb, J. Beaver, Mach'y, pgs., 10
Weriemann, H., Arms, cs., 40

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, October 23, 1889.

The market for Pig-Iron has continued active, but not as excited this week as last. Large purchases have been made of Hematites, part for speculative account, but Cleveland Pig and Scotch Warrants have been less active. Prices for Warrants went to 55/6, but since reacted to 54/3, and later moved back to 53/. On makers' brands prices show 6d @ 2/6 advance; Middlesborough Pig is up 6d, and Hematites are 6d up from the price ruling last week, although not as high to-day as during the latter portion of last week. In Manufactured Iron there continues to be a large business at strong prices, and Common Bars at 10/ higher. Prices for nearly all descriptions of Steel are 2/6 @ 3/9 higher, and selling quite freely at the advance.

Tin-Plate has continued in active demand and prices are maintained. Many of the mills are busy engaged on orders for special sorts, which at present are chiefly called for. Some sales have been made from second hands at less than market prices.

Copper has undergone but little change, except that the difference between cash and futures has narrowed still further. Merchant-Bar warrants are rather scarce and speculative interest in the market is tame. Owing to small Chili charters there was 714 tons decrease in the visible supply the last fortnight. Of Montana Matte 100 tons have been sold at 8/ ₱ unit.

The report of the Bratsburg Copper Company shows a loss last year of £1900.

Block Tin has been in active demand, particularly for export to America, and speculation has been large also. Shipments have been fairly large. An advance early in the week was followed by a reaction, but at £91 @ £91. 5/ the market appeared strong and finally advanced to £91. /15.

There have been large inquiries from consumers for Old Material and higher prices are offered.

The Continental markets for Iron and Steel of all descriptions continue strong. Pig-Iron is scarce and prices are still tending upward.

Scotch Pig.—The market strong to-day and fairly active.

No. 1 Coltness,	f.o.b.	Glasgow	75/
No. 1 Summerlee,	"	"	72/6
No. 1 Gartsherrie,	"	"	72/
No. 1 Langloan,	"	"	72/6
No. 1 Carnbroe,	"	"	58/
No. 1 Shotts,	"	at Leith	70/
No. 1 Glengarnock,	"	Ardrossan	70/
No. 1 Dalmellington,	"	"	60/6
No. 1 Eglinton,	"	"	58/6

Steamer freights, Glasgow to New York, 6/3; Liverpool to New York, 10/.

Cleveland Pig.—The demand quite brisk and prices strong. No. 3 Middlesborough quoted 51/3, prompt.

Bessemer Pig.—A large business still passing and prices strong. West Coast brands, mixed numbers, 63/, f.o.b. shipping point.

Spiegeleisen.—Demand good and offerings light. Prices nominal. English 20 % quoted 85/, f.o.b. at N. W. England shipping point.

Steel Rails.—Sales at 2/6 advance and the demand good. Heavy sections quoted at £5. 17/6 and light sections £6. 2/6 @ £6. 12/6, f.o.b. at N. W. England shipping point.

Steel Blooms.—A fairly active business and prices higher. We quote £5. 7/6 for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—There has been a larger business and prices are strong. Bessemer, 2½ x 2½ inch, £5. 7/6, f.o.b. at N. W. England shipping point.

Steel Slabs.—Makers quoting higher prices, but only moderate sales making. Bessemer, £5. 8/9, f.o.b. at N. W. England shipping point.

Old Rails.—There is a good demand. Buyers and sellers far apart on prices. Tees quoted at £3. 5/ @ £3. 10/ and Double Heads £3. 7/6, @ £3. 12/6, f.o.b.

Scrap-Iron.—There has been a good business at firm prices. Heavy Wrought quoted £2. 12/6 @ £2. 15/, f.o.b.

Crop Ends.—The market very firm and fairly active. Bessemer quoted £2. 15 @ £2. 17/6, f.o.b.

Tin-Plate.—A large business has been done and the market is strong. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade	16/3 @ 16/9
IC Bessemer Steel, Coke finish	14/9 @ 15/
IC Siemens " " "	15/ @ 15/3
IC Coke, B. V. grade	14/ @ 14/3
Charcoal Terne, Dean grade	13/ @ 13/3

Manufactured Iron.—A good demand continues and prices are strong throughout. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Marked Bars	9	0	0	@	0	0	0
" Common "	0	0	0	@	7	15	0
Staff. Bl'k Sheet, singles	0	0	0	@	9	0	0
Welsh Bars (f.o.b. Wales)	7	2	6	@	7	5	0

Copper.—The market steady and demand very fair. Chili Bars quoted at £42. 15/, spot, and £42. 5/, three months' futures. Best Selected, £48.

Tin.—A quite active demand and the market very firm. Straits quoted at £91. 12/6 @ £91. 15/, spot, and £92. 5/ @ £92. 10 for three month's futures.

Spelter.—Moderate sales at slightly reduced price. Quoted at £21. 15/ for ordinary Silesian.

Lead.—Only a moderate trade and prices unchanged. Quoted £12. 10/ for Soft Spanish.

Foreign Markets.

EQUIVALENTS

	Cents.
Franc, Peseta or Lira	19.3
Florin (Netherlands)	40.2
Florin (Austria)	35.9
Milreis (Portugal)	$1.08.
Milreis (Brazil)	54.6
Mark (Germany)	23.8
	Pounds
Kilogram	2.205
Picul	134.

EAST INDIES.

COLOMBO, CEYLON, September 5, 1889.—*Plumago*—The market has remained steady. We quote at the close 180 @ 220 rupees ₱ ton, large lumps; ordinary do., 160 @ 200; Chips, 95 @ 120, and Dust, 70 @ 80. Shipments since October 1 have been as follows, in hundredweights: To England, 148,983; to Venice, 102; to Hamburg, 7816; to Antwerp, 12,844; to Bremen, 1254; to Holland, 437; to India, 257; to Australia, 392, and to the United States, 157,376; together, 329,461, against 222,209 last year, 220,432 in 1887 and 177,767 in 1886. *Exchange.*—Six months' sight, 1/4 11-16.—*Volkart Bros., Ceylon and Malabar Coast, through their agent in New York, Mr. John W. Greene, 82 Wall street*

MANILA, October 14, 1889.—*Hemp*—Has been nominally worth $13.50, against $11.12½ same date last year, ₱ picul, equaling ₱ ton, cost and freight, £42. 17/6, against £37. 15/. Cleared for the United States since last cable, none, against 11,000 bales last year. Since January 1, 152,000, against 163,000; loading for do, 16,000, against 51,000; cleared for England since January 1, 240,000 bales, against 268,000; loading for do., none, against 11,000; cleared for all other ports, 38,000 bales, against 59,000; receipts at all ports since last cable, 15,000, against 24,000, and since January 1, 466,000 bales, against 506,000 in 1888 and 404,000 in 1887. *Freight.*—$5 50, against $6. *Exchange*—3/5¼, against 3/6½.—*Ker & Co., per cable direct to their agent in New York, Mr. Charles Nordhaus, 89 Water street*

BELGIUM.

BRUSSELS, October 12, 1889.—*Iron.*—The demand for Finished is as active as ever and prices remain firmly sustained, with an upward tendency, since they are still out of proportion with the raw material. Steel Rails have been sold, intended for Holland, at 150 francs ₱ ton at the works. We quote to-day, in francs ₱ 100 kg.: Foundry Pig, 6.50 @ 8; Forge do., 5.50 @ 6; Merchant No. 1, 13.25 @ 13.50; Beams, 12 @ 12.50; Angles, 14.25 @ 15.25; Sheet-Iron, 17 @ 26, and do. Steel, 19.50 @ 20.50. Out of 48 blast-furnaces in Belgium 15 remain blown out.—*Moniteur des Intérêts Matériels.*

SWEDEN

STOCKHOLM, October 10, 1889.—*Iron.*—The Swedish Iron market has experienced a decided improvement for some weeks past, leading to a rise of 5 @ 6 crowns, of 28¢ American, ₱ 50 kg. The rolling-mills are loaded down with orders. They have at least been able so far, however, to keep pace with the rapidly rising tendency. Shipments of all sorts of Iron are very active, especially compared with the corresponding months of 1888. Thus in August 50,367 tons of Pig were shipped, against 29,742 same month last year; 118,795 tons of Finished, against 109,795, and 5912 tons Castings, against 1603. While Sheet-Iron and Nails have been in comparatively less request, the contrary has been the case with Wire Rods, of which so far this year the excess of exportations over 1888 has been 1599 tons, and of Castings 1000 tons.—*Dagbladet.*

GERMANY.

HAMBURG, October 12, 1889.—*Iron.*—The Rhenish-Westphalian domestic supply of Pig not sufficing, importation on a large scale has been resorted to; Forge Pig is now from 1 to 2 marks ₱ ton higher. Spiegeleisen has been lively at an advance to 77 marks ₱ ton at the works. Other kinds of Pig have advanced even more rapidly, and the market winds up at 65 @ 72 marks ₱ ton Forge Pig; White Steel, 70 @ 71, and Foundry, 66 @ 75; Thomas, 60 @ 62, and German Bessemer, 70 @ 72. Rolling mills require ten to twelve weeks for delivery; a good demand also prevails for their products for export. The general impression seems to be that the present range of Iron prices cannot well give way before next summer, the rolling mills, some of them, being booked far into the coming year. At nothing less than 145 marks ₱ ton has the Government been able to get Steel Rails, delivered at Breslau; there were no foreign tenders. All branches are flourishing, in Upper Silesia quite as much as in Westphalia. *Spelter.*—At Breslau the quotation is 22 marks; as is usual at this time of the year, there is a quieter feeling, yet the situation is as sound and promising as ever, notwithstanding the temporary decline in London, the requirements being steadily on the increase. Sheet-Zinc is being turned out on a large scale and sells as quickly as it is placed on the market.—*Borsenhalle.*

HOLLAND.

ROTTERDAM, October 5, 1889.—*Tin.*—On the 25th ult. 20,000 Slabs Banca were sold by the Trading Company at 55.37½ guilders ₱ 50 kg., since when it dropped to 55.25, while Billiton recovered from 54.75 to 55. The following statement shows the position of Banka Tin in Holland on the 30th September from the official returns published by the Dutch Trading Company:

	1889. Slabs.	1888. Slabs.
Import in September	4,000	8,350
Total nine months	119,447	156,123
Deliveries in Septpmber	12,750	9,325
Total nine months	117,736	101,917
Stock, second-hand	35,328	32,700
Unsold stock	131,644	113,361
Total stock	166,972	146,061
Afloat, piculs	.....	4,100

Statement of Billiton.

	1889. Slabs.	1888. Slabs.
Import in September	10,800	10,845
Total nine months	80,063	68,421
Deliveries in September	9,896	5,650
Total nine months	68,299	64,886
Stock	31,064	18,633
	Piculs.	Piculs.
Afloat	17,000	15,500
Quotation 30th September, Banca	fl. 55¼	63¼
Quotation 30th September, Billiton	fl. 54¾	62¼

Export of Tin from Holland.

	Seven months.		
	1889.	1888.	1887.
To Germany	3,782	3,827	3,085
To England	96	81	90
To Belgium	576	522	605
To France	152	258	216
To Hamburg	309	247	353
To the United States	226	196	325
To other countries	302	412	486
Totals	5,443	5,543	5,160

—*De Monchy & Havelaar.*

The United States Government has awarded to Merchant & Co., of Philadelphia, a contract to furnish 100,000 pounds of copper blanks for making pennies and 50,000 pounds of nickel blanks for making 5-cent pieces, to be delivered at the Philadelphia Mint. The blanks are small pieces of metal, milled and ready to be stamped by the Government.

The Wheeler Iron Company have purchased the furnace of the Henderson Iron Company, at Sharpsburg, Pa.

It has been definitely settled that all the iron-work for the Reading Railroad's Philadelphia terminal shall be built at Reading, the work to be done by the Reading Iron Company, who are now practically a part of the railroad company. The Reading Iron Company are liquidating the indebtedness of the old Reading Iron Works, amounting to several hundred thousand dollars, by giving $500 and $1000 bonds to the creditors for 50 per cent. of the claims, the creditors assigning the claims to the new organization. Scrip is given to bondholders by the company for fractional sums less than $500. A large number of the 4 per cent. bonds have already been taken. To the creditors of the old Reading Iron Works whose claims are $300 or under the new company intend to offer 45 per cent. cash. This offer will be made to avoid inconveniences to small creditors of taking scrip convertible into the 4 per cent. bonds.

Chicago Elevated Road Projects.

Manufacturers of structural material will be interested in knowing that progress is being made on two elevated railroad projects in Chicago. The West Chicago Rapid Transit Company have been favorably acted upon by the Council committee. As favorable action by the full Council is now generally conceded, public interest is freshly awakened in the company's intentions and prospects. The committee's action is especially important as marking the first practical step to secure elevated roads in West Chicago of non-experimental kind. The West Chicago Rapid Transit Company's ordinance is for a system of elevated structures patterned after the most modern and improved structures now in actual use at New York and Brooklyn. The company are composed entirely of Chicago citizens and are the pioneer organization of the kind on the west side. With one or two slight exceptions the *personnel* of the Board of Directors is now the same as at the formation of the company. The late John D. Jennings was president of the company, and his place has not yet been filled. The other officers are: Thomas R. Bryan, vice-president; E. Nelson Blake, secretary; George Sherwood, treasurer; A. M. Wright, general manager. The directors, in addition to the officers mentioned, are William Ripley, Portus B. Weare and Willard Woodard.

The capital stock of the company is $6,000,000, but no stock has been issued nor will be until the building of the road is an assured fact. According to the company's pledge, made at various rapid-transit meetings on the west side, the stock-books will be first thrown open to the general Chicago public, so that all who wish a part proprietorship in the road may obtain it. The general course is to bond the road for the amount expended on construction, and this will probably be the case in the present instance. According to the testimony of the officers of the company, the capital to build with has been offered over and over again from different sources, and the financial plans of the company are apparently giving them the least concern. The money for preliminary expenses has been subscribed by the directors, who will be reimbursed in stock when the latter is issued. Randolph street and Ogden avenue constitute the trunk lines of the West Chicago Rapid Transit Company, the intention being to subsequently erect feeders and branches on such streets as will best subserve the interests of the public and the company. It is the company's intention to use steel entirely, instead of iron, in construction. The effect of this will be to lessen materially the obstruction to light and air along the streets used. The cost of such a structure will be in the neighborhood of $500,000 a mile in the down-town portion, including condemnation damages. The Chicago South Side Rapid Transit Company, who propose to build an elevated road in the south division, show a disposition to press their condemnation suits to a speedy trial. Twenty cases against property between Congress and Thirty-second streets were placed on a special calendar in Judge Tuthill's court on the 15th inst. to be tried November 18. In a great many instances the company have secured property for their right of way by settlement out of court.

Hardware.

There is little change in the situation since our last review of the market, trade continuing steady and in good volume. Prices, especially in heavy goods, are decidedly firm, and some further advances have taken place, as noted below. In other lines which lie near the raw material there has also been a perceptible stiffening in price, although in many instances there is no quotable change. In most lines of General Hardware the improvement in the tone of the market is evidenced only in the fact that the manufacturers are not quite so desirous of selling their goods and are indisposed to offer concessions as freely as usual

Barb-Wire.

In this market Barb-Wire is held very firm at prices named in our last issue—3.75 cents for Galvanized Four-Point in carload lots, 3.85 cents in 3-ton lots, and 4.05 cents in smaller parcels. In anticipation of further advance in the market buyers are in some instances disposed to place orders in advance of their requirements.

The negotiations to which we have recently referred which have for some time been going on with a view to controlling the market for Barb-Wire and other lines are still continued and are regarded by those actively connected with the movement as progressing satisfactorily, with a prospect of a successful consummation. The daily press contains many references to the project, and most of them are obviously inaccurate and unreliable and contain many glaring errors, indicating not only a lack of information in regard to this movement, but ignorance in regard to the trade in general. Under these circumstances we are permitted to give our readers fuller advices than have heretofore been published in regard to the movement and its intended scope.

The company which is being formed is to be known as the Federal Steel Company, and will have a capital of perhaps $10,000,000 or $12,000,000, of which we are advised that $6,000,000 to $7,000,000 represents the cash value of the plants taken into the company and the balance will be issued for cash for working capital. The design of the company, which to a good extent has been carried into effect, is to take in all the Barb-Wire, Plain-Wire, Wire-Rod and Wire-Nail makers who desire to come in on an equitable basis, and the different manufacturers have accordingly been given an opportunity to join the company. As the result of these negotiations between 30 and 40 makers of the lines above indicated have given options for the sale of their plants to the new company.

The projectors of the enterprise insist that this is in no sense a trust, but an endeavor by the manufacturers to reduce the cost of manufacture by running the best plants to an extent sufficient to supply the demand for Barb Fence Wire and Wire Nails, to reduce the expense of selling and to maintain a stable, uniform price for the products. It is also understood that the attempt to control the makers of Plain Wire and Wire-Rods is for the purpose especially of preventing competition in the manufacture of Barb-Wire. The promoters of the projected company, however, state that it has not been contemplated to make a large advance in prices, and that it is likely that the new company will not make any change whatever in the selling price of Barb Fence Wire and Wire Nails at the time they start in business, it being considered by the concerns who are interested in the company far more desirable to make money by economy in manufacture and reduction of expenses than to invite competition by making an excessive advance.

There is some question as to the concerns which have already definitely bound themselves to the adoption of this new plan, and advices on this point are somewhat conflicting. Some large concerns are referred to as not having acceded to it, and certainly one of the largest whose name has been prominently connected in current reports with the proposed consolidation has not joined the company. Perhaps, however, in our next issue we will be able to give our readers a full and complete list from official sources of all the companies whose plants have been taken into the new corporation. We are now advised that with one or two important exceptions they comprise nearly all the Barb-Wire manufacturers of the country and the Wire-Nail manufacturers west of the Alleghany Mountains, and most of the leading Wire and Wire-Rod mills. It is evident, however, that the matter has not yet taken final and definite form, and the carrying out of the project is not at this writing entirely certain.

As has been well known for the past few years, the price of Barb-Wire has been gradually depressed to a greater extent than most other leading goods, and the pressure of this reduction has been so severe that at least 50 per cent. of the manufacturers of Barb-Fence Wire and Plain Wire and Wire Nails that were in existence six years ago have been crowded out of the business or forced to manufacture at an actual loss. There have been violent fluctuations in prices, although in the main the tendency has been downward, and jobbers and retail dealers have found the values of their stock at one time depreciating rapidly and at another time have been unable to secure Barb-Wire at a price that would enable them to fill their orders without loss. The result of this has been that, although some jobbers and retailers have been able to make at times a large profit, at other times they have invested heavy amounts of money in stocks which have yielded very little profit, and the promoters of the consolidation refer to the advantage that will accrue to the trade in a market that will be characterized by regularity. While the price to the consumer, on account of the advance in raw material now going on, must necessarily be higher than the low figures which have recently prevailed, we are assured by those interested in the new company that it is their intention that Barb Fence Wire, Plain Wire and Wire Nails will continue to be sold at much less than the average price which has ruled for the past few years, and that it is not the intention of the new company to make anything more than a legitimate manufacturers' profit in the future.

Cut Nails.

The market is active and higher. At a meeting of the Eastern manufacturers of Cut Nails, held in the city yesterday, the card price of Nails was put at 2.20¢, with 2.10¢ as the price for carload lots on dock. A very important step was taken in regard to the schedule. The only sizes now constituting the base sizes are 12d and 16d. On the following sizes which were until now included in the base sizes an extra of 10¢ will be charged, viz.: 20d, 30d and 40d.

Wire Nails.

The mills have recently been receiving heavy orders and some of them are indisposed to book more, as those already sold will keep them busy for some time to come. This animated demand has been largely for consumption, but has also been stimulated by the steady rise in price and the intimations which have reached the trade in one way or another of the negotiations which are going on with reference to the control of the Wire market. Since our last issue a further advance has been made and the goods are held at considerably higher figures; $2.75 may be named as a general price for fair lots and $2.60 as the extreme price for carloads at mill. Some of the companies, we are advised, refuse to meet this figure, and in the present condition of things it is not unlikely that it will soon be superseded by a higher price.

Miscellaneous Prices.

American News Company, New York, who now control the business in School Slates, have made a reduction in price by which the regular discount is made 50 per cent, or 50 and 10 per cent. in case lots, f.o.b. New York. Special prices are also made for purchases of large lots direct from the quarries. This reduction in price is understood to be with a view to discouraging competition.

Maltby, Henley & Co., 20 Warren street, New York, have made a decided reduction in the price of their Giant Nail-Pullers, the No. 1 being now quoted at $18 per dozen in dozen lots and the No. 2 at $15 per dozen, subject to a discount of 10 per cent. In lots of less than a dozen the list prices are net. This important reduction in price is made in view of the large demand for the goods and in the hope that the sale will be largely increased by these lower prices.

Bright Wire Goods are very firm and it is expected that an advance will soon be made. The method adopted by the manufacturers for controlling the market and giving regularity to prices is referred to as working exceptionally well.

Strap and T Hinges and Wrought Butts are decidedly firm, and manufacturers are apparently not desirous of booking many more orders at present. The demand has recently been heavy and prices have materially improved.

An advance of 25 cents has been made in the price of Wire Clothes-Lines, and the market for these as all other Wire Goods is strong.

The Screw market is regarded as in a very satisfactory condition, and prices are regularly maintained. With the increased price of the raw material and the satisfactory understanding that exists among the manufacturers the trade would not be surprised if a moderate advance were soon announced. Of this the manufacturers give no intimation, but there are circumstances and indications which are regarded as rendering it not improbable.

We are advised that the Clement Mfg. Company, Northampton, Mass., have appointed Robert Murray, 24 Duane street, New York, agent for the sale of their Vulcan Screw-Drivers, a description of which was given in our last issue. The following is the list of these goods, which is subject to a discount of 40 per cent.:

Nickel Plated.

Made with light blades for small work.

Size.	Per dozen.
2½	$3.50
3½	4.00
4	4.50

Adapted for any heavy work.

Size.	Per dozen.
5	$8.25
6	9.50
8	10.50
10	12.00
12	14.25

Standard Company, 57 Haverhill street: Boston, Mass., issue a circular giving the following revised price-list of Egg-Beaters,

Duplex, per gross	$12.00
Rival, in 5-gross lots	9.00
Duplex, extra heavy, per gross	27.00

Tacks.

The announcement that the Tack manufacturers, who have for some time been apart, and in some respects widely apart, have again come together, formed an association and agreed upon prices will be received by the trade with some surprise, as the negotiations looking to this end have been quietly conducted, so that comparatively few houses were aware of the intended action. Last Saturday, however, at a meeting held in this city in which most of the leading manufacturers were represented an organization was formed and action taken with a view to giving the market a regularity which it has not had since the breaking up of the Central Mfg. Company. The association thus organized embraces manufacturers representing upward of 2400 machines and includes all the leading concerns in the country. Among the members are the following:

DUNBAR, HOBART & Co., South Abington, Mass.
A. FIELD & SONS, Taunton, Mass.
LORING & PARKS, Plymouth, Mass.
CHESS, COOK & Co., Pittsburgh, Pa.
SANDWICH TACK Co., Sandwich, Mass.
NORWAY TACK Co., Wheeling, W. Va.
STEVENS & WILLIS, South Braintree, Mass.
AMERICAN TACK Co., Fairhaven, Mass.
CHICAGO TACK Co., Grand Crossing, Ill.
COBB & DREW, Plymouth, Mass.
FLORENCE TACK COMPANY, Florence, Mass.
D. B. GURNEY, Whitman, Mass.
E. PHILLIPS & SONS, South Hanover, Mass.
PLYMOUTH MILLS, Plymouth, Mass.
ROCKFORD TACK COMPANY, Rockford, Ill.
SHELTON COMPANY, Birmingham, Conn.
STANLEY WORKS, New Britain, Conn.
TAUNTON TACK COMPANY, Taunton, Mass.
L. C. WATERMAN & Co., South Hanover, Mass.
CLEVELAND TACK WORKS, Cleveland, Ohio.
GRAND CROSSING TACK COMPANY, Grand Crossing, Ill.
FRENCH, HALL & Co., Rockland, Mass.
A. E. CONVERS, Cleveland, Ohio.
E. B. BRIGGS & Co., West Scituate, Mass.
L. E. FORD & Co., Kingston, Mass.
And many others.

Henry Hobart, South Abington, Mass., is president of the association and H. B. Dean, of Taunton, Mass., vice-president, the Executive Committee being constituted as follows: John H. Parks, Plymouth, Mass.; Walter Chess, Pittsburgh, Pa.; I. T. Jones, Sandwich, Mass., and the president and vice-president named above.

The unsatisfactory condition of the Tack market and the confusion which has characterized it are well known to the trade, who have suffered not a little inconvenience from the lack of uniformity in discounts and the diverse and irregular methods of putting up goods. These matters have been also unsatisfactory to the manufacturers, to whom the pressure of low prices connected with them has been extremely distasteful. The object of their coming together at this time was to correct this condition of things and agree as far as possible upon methods of putting up the goods, prices, deliveries, &c., and it is hoped that the action taken will be for the advantage both of the manufacturers and the trade at large.

The question as to the manner in which goods should be put on the market, with a special reference to the light and irregular weights, received the careful attention of the manufacturers, and a schedule of specified weights was adopted as explained below. In this action it will be seen that the association have adopted the method which was introduced by Loring & Parks and which was received with so much favor by the trade at large, offering as it did goods in different specified weights, so that the trade are advised definitely in regard to the goods purchased, thus in perhaps in the most effective way correcting the tendency toward the selling of short-weight goods. Under this method it will be seen that the goods as named below and in the discount sheet which follows are furnished in different weights, designated "straight," "star," "standard" and "special," on which different prices are quoted. The dealer can thus obtain goods of such weight as are best adapted to the requirements of his trade and at the same time have a standard by which he can test the goods purchased and be assured that he is receiving the proper weight. The following is the schedule:

Schedule Weights of Dozened Hardware List Goods, Ounces per Dozen, including Paper Boxes and Wrappers

Ounces.	Straight weights. * Full.	½	¼	Star weights. ** Full.	½	¼	Standard weights. *** Full.	½	¼	¼	Special weights. **** ½	¼
										Assorted papers without wraps.	Tinned and Copp'd Carpet Tacks only.	
1	12	6	..	11	5	..	10	4	..			
1½	18	9	..	17	8	..	16	7	..			
2	24	12	..	20	10	..	18	9	..			
2½	30	15	..	27	13	..	25	12	..			
3	36	18	9	34	16	8	32	14	6	6		
4	48	24	12	46	22	10	44	20	9	6	C.	B.
6	72	36	18	68	32	16	64	26	13	9	32	12
8	96	48	24	90	42	20	80	33	16	12	29	14
10	120	60	30	112	53	26	100	38	18	12	33	15
12	144	72	36	136	68	31	120	44	21	15	40	16
14	168	84	42	160	78	36	134	56	4	18	.....	.....
16	192	96	48	184	88	42	148	64	27	18	.....	.....
18	216	108	54	208	98	48	160	72	..		.....	.....
20	240	120	60	230	108	50	180	80	..		.....	.....
22	264	132	..	252	124	..	190	90	..	Cut Tacks	.....	.....
24	288	144	..	272	132	..	200	100	..		.....	.....

Uniform Weights.—Steel Carpet-Tacks.

Straight weights.	Star weights.	Standard weights.	Special weights
Blu'd, Bright Tinned, Copped.	Blu'd, Bright Tinned and Coppered.	Blued and Bright only.	Tinned and Coppr'd only.
A uniform 24 ounces. 2A uniform 48 ounces.	A 21 ounces 2A 42 ounces	A 16 ounces. 2A 32 ounces.	16 oz. 32 oz.
		Tinned and Copp'd only. A 18 ounces. 2A 36 ounces.	

Hungarian Nails.

	Straight weights.	Star weights.	Standard weights
3 lb. list.	48 oz.	42 oz.	36 oz.
2¾ lb. list.	44 oz.	38 oz.	32 oz.
2½ lb. list.	40 oz.	34 oz.	28 oz.
2¼ lb. list.	36 oz.	32 oz.	24 oz.
2 lb. list.	32 oz.	28 oz.	20 oz.

The following note explaining the above schedule is appended:

We shall endeavor to have all packages conform accurately to the above schedule, but will not be responsible for variations of weights on single dozens not exceeding 2 ounces more or less than the scheduled weights, as it is impossible to avoid such variations above and below schedule weights. On full cases we will guarantee conformity to the schedule weights to not exceeding a variation of 1 ounce per dozen per case. Assorted papers American Iron Tacks we shall pack only in straight, star and standard weights.

Action was also taken revising Hardware list, making a few changes. The list in full as revised is printed on another page. It is subject to the discounts printed in the following discount sheet and also to a discount of 10 and 2 per cent. for cash on or before the 20th of the calendar month succeeding shipment. Goods are delivered to the principal points on or east of the Mississippi River. The discount sheet is as follows:

Goods, papered, dozened and M's.	Straight Weights. *	Star weights. **	Standard weights. ***	Special weights. ****
American Carpet Tacks, Blued	75 %	75&5 %	80 %	.....
Americad Carpet Tacks, Tinned and Coppered	77½ %	77½&5 %	80&5 %	82½ %
Steel Carpet Tacks, Bright and Blued	72½ %	72½&5 %	77½ %	.....
Steel Carpet Tacks, Tinned and Coppered	75 %	75&5 %	80 %	80&10 %
Swedes Iron Carpet Tacks, Blued	75 %	75&5 %	77½ %	.....
Swedes Iron Carpet Tacks, Tinned	77½ %	77½&5 %	80 %	.....
American Iron Tacks	72½ %	72½&5 %	75 %	.....
Swedes Iron Tacks, S. S., Blued	75 %	75&5 %	77½ %	.....
Swedes Iron Tacks, S. S., Tinned	77½ %	77½&5 %	80 %	.....
Swedes Iron Tacks, Lanc., Blued	67½ %	67½&5 %	70&10 %	.....
Swedes Iron Tacks, Lanc., Tinned	75 %	75&5 %	77½ %	.....
Gimp and Lace Tacks, S. S., Blued	75 %	75&5 %	77½ %	.....
Gimp and Lace Tacks, S. S., Tinned	77½ %	77½&5 %	80 %	.....
Gimp and Lace Tacks, Lanc., Blued	67½ %	67½&5 %	70&10 %	.....
Gimp and Lace Tacks, Lanc., Tinned	75 %	75&5 %	77½ %	.....
Basket and Trimmers' Tacks, Lanc.	65 %	65&5 %	70 %	.....
Hungarian Nails	70 %	70&5 %	72½&5 %	.....
Miners' Tacks, S. S.	75 %	75&5 %	77½ %	....
Miners' Tacks, Lanc.	70 %	70&5 %	72½&5 %	.....
Common and Patent Brads	70 %	70&5 %	72½&5 %	.....
Leathered Tacks	45 %	45&5 %	50 %	.....
Brush Tacks	90 %	These are not packed in other weights.		
Looking-Glass Tacks	50 %			
Picture-Frame Points	50 %			
Copper Tacks	55 %			
Carpet Tacks, Blued, by the count	75 %			
Carpet Tacks, Tinned, by the count	½ %			
Pounds, Pound or Half-Pound Papers or Bulk.				
Swedes Iron Tacks, Lanc., Blued	67½ %	.....	.....	.....
Swedes Iron Tacks, Lanc., Tinned	75 %	.....	.....	.....
Swedes Iron Tacks, S. S., Blued	75 %	.....	.....	.....
Swedes Iron Tacks, S. S., Tinned	77½ %	.....	.....	.....
Gimp and Lace Tacks, Lanc., Blued	67½ %	.....	.....	.....
Gimp and Lace Tacks, Lanc., Tinned	75 %	.....	.....	.....
Gimp and Lace Tacks, S. S., Blued	75 %	.....	.....	.....
Gimp and Lace Tacks, S. S., Tinned	77½ %	.....	.....	.....
Trimmers' Tacks, Lanc.	65 %	.....	.....	.....
Basket Tacks, Lanc.	65 %	.....	.....	.....
Finishing Nails	67½ %	.....	.....	.....
Trunk & Clout Nails, Black	70 %	.....	.....	.....
Trunk & Clout Nails, Tinned or Coppered	70 %	.....	.....	.....
Hungarian Nails	70 %	.....	.....	.....
Basket Nails	65 %	.....	.....	.....
Chair Nails	65 %	.....	.....	.....
Cigar-Box N'ls	55 %	.....	.....	.....
Copper Trunk and Finishing Nails	45 %	.....	.....	.....
Zinc Glaziers' Points	45 %	.....	.....	.....

Any of above goods coppered, not specified, price the same as tinned. Upholsters', Bill-Posters' and Railroad Tacks same prices as for Swedes Iron Tacks of corresponding sizes.

HARDWARE LIST.

PRICES OF TACKS, BRADS, &c.

ADOPTED BY TACK MANUFACTURERS, OCTOBER 19, 1889.

Full Weight. Oz.	½	¾	1	1½	2	2½	3	4	6	8	10	12	14	16	18	20	22	24
Swedes Iron Tacks §	60	70	80	90	100	110	120	140	170	200	230	270	310	340	380	420	460	500
Tinned Swedes Iron Tacks §	100	110	130	150	170	190	200	210	250	290	340	400	450	500	570	630	700	760
Gimp and Lace Tacks	100	110	120	130	140	150	160	180	200	220	250	290	330	360	400	450	500	550
Tinned Gimp and Lace Tacks	130	140	160	190	210	230	250	260	270	300	360	410	470	530	600	660	730	800
American Iron Tacks ‖	....	....	80	90	90	100	110	120	130	150	180	210	240	270	300	330	360	390
Tinned American Iron Tacks ‖	....	....	....	....	....	....	160	180	200	220	270	310	360	410	460	510	560	610
Copper Tacks	112	112	112	130	140	160	180	200	252	336	420	504	588	....	....	....	....	....

Half Weight. Oz.	½	¾	1	1½	2	2½	3	4	6	8	10	12	14	16	18	20	22	24
Swedes Iron Tacks §	35	40	45	50	55	60	65	75	90	105	120	140	160	175	195	215	235	255
Tinned Swedes Iron Tacks §	55	60	70	80	90	100	105	110	130	150	175	205	230	255	290	320	355	385
Gimp and Lace Tacks	55	60	65	70	75	80	85	95	105	115	130	150	170	185	205	230	255	280
Tinned Gimp and Lace Tacks	70	75	85	100	110	110	130	135	140	155	185	210	240	270	305	335	370	405
American Iron Tacks ‖	....	....	45	50	50	55	60	65	70	80	95	110	125	140	155	170	185	200
Tinned American Iron Tacks ‖	....	....	..	....	....	....	85	95	105	115	140	160	185	210	235	260	285	310
Hungarian Nails, American Iron	....	....	....	....	....	....	35	45	55	65	75	90	100	110	120	130	....	....

Quarter Weight and Special Uniform Weight, &c. Oz.	½	¾	1	1½	2	2½	3	4	6	8	10	12	14	16	18	20	22	24
American Iron Tacks, qr. wt.	....	....	....	....	....	....	35	40	45	50	55	60	70	80	90	100	110	120
American Iron Carpet Tacks, qr. wt.	....	....	....	....	....	....	33	35	40	45	50	55	65	75	85	95	105	115
Tinned Am. Iron Carpet Tks, qr. wt.	....	....	....	....	....	....	45	50	55	60	75	85	100	110	120	135	145	160
Steel Carpet Tacks, 2 oz. papers	....	....	....	....	....	....	....	....	45	45	45	45	45	45	....	....	....	....
Steel Carpet Tacks, 4 oz. papers	....	....	....	....	....	....	....	....	80	80	80	80	80	80	....	....	....	....
Tinned Steel Carpet Tks, 2 oz. papers	....	....	....	....	....	....	....	....	60	60	60	60	60	60	....	....	....	....
Tinned Steel Carpet Tks, 4 oz. papers	....	....	....	....	....	....	....	....	115	115	115	115	115	115	....	....	....	....
Leath'd Carpet Tacks (100 in papers)	....	....	....	....	....	....	....	24	26	28	30	32	34	....	....	....	....	....
Leath'd Carpet Tacks (144 in papers)	....	....	....	....	....	....	....	30	32	34	36	38	40	....	....	....	....	....

Goods Sold by Length. Prices per Pound, Paper or Doz. Inch.	2-8	2½-8	3-8	3½-8	4-8	4½-8	5-8	5½-8	3-4	7-8	1	1⅛	1¼	1½	1¾	2	2¼	2½
Finishing Trunk and Clout Nails † ‡	....	....	48	40	32	28	26	24	22	20	19	19	19	19	19	19	19	19
Tinned Trunk and Clout Nails † ‡	....	....	60	50	42	38	36	33	31	29	27	27	27	27	27	27	27	27
Tinned Capped Trunk Nails † ‡	....	....	....	....	....	....	....	....	35	30	27	27	27	27	27	27	....	....
Basket Nails, Chair and Cigar Nails † ‡	....	....	51	43	35	31	29	27	25	23	21	20	20	20	20	20	....	....
Basket Nails Tinned † ‡	....	....	62	52	44	40	38	35	33	31	29	28	28	28	28	28	....	....
Copper and Brass Finishing and Cigar-Box Nails † ‡	..	....	78	....	68	....	64	....	62	60	58	58	56	56	56	56	56	56
Copper and Brass Trunk and Clout Nails † ‡	....	....	60	....	56	....	56	...	56	56	56	....	56	56	56	56	....	56
Common and Patent Brads, full wt. *	100	....	120	....	130	....	144	....	160	180	200	224	252	364	450	486	....	....
Common and Patent Brads, half wt. *	50	...	60	....	65	....	72	....	80	90	100	112	126	182	225	243	....	....
Common and Patent Brads † ‡	125	100	80	....	58	....	48	....	36	30	26	25	24	22	20	18	....	....
Brush Tacks † ‡	....	....	....	....	70	60	50	42	36	30	26	24	24	....	....	....	....	....
Brush Tacks, full wt. *	....	....	....	....	210	216	216	216	216	224	234	250	....	....	....	....	....	....
Looking-Glass Tacks † ‡	....	....	....	....	40	....	36	....	32	28	24	....	....	....	....	....	....	....
Looking-Glass Tacks, full wt. *	....	....	....	....	76	....	80	....	96	110	150	....	....	....	....	....	....	....
Picture-Frame Points † ‡	....	....	....	....	32	....	28	....	24	22	20	....	....	....	....	....	....	....
Hungarian Nails, American Iron † ‡	26	26	22	22	20	20	20	20	20	20	20	....	....	....	....	....	....	....
Hungarian Nails, in ¼-lb. pa., Am. Iron †	27	27	23	23	21	21	21	21	21	21	21	....	....	....	....	....	....	....
Hungarian Nails, in ¼-lb. pa., Am. Iron †	28	28	24	24	22	22	22	22	22	22	22	....	....	....	....	....	....	....
Hungarian Nails, Swedes Iron † ‡	31	31	37	27	25	25	25	25	25	25	25	....	....	....	....	....	....	....
Zinc-Glaziers' Points, (½ lb.) cts. pr. paper	....	....	...	....	...	....	....	....	....	....	....	....	....	....	11	....	....	....

In Bulk and in Pound Papers.—Goods Sold by the Ounce.—Prices per Pound.

Swedes Iron Tacks. §

Ounce	½	¾	1	1½	2	2½	3	4	6
Per pound	$1.60	1.25	1.00	.80	.66	.58	.52	.46	.38
Ounce	8	10	12	14	16	18	20	22	24
Per pound	$0.33	.31	.30	.29	.28	.28	.28	.28	.28

Tinned Swedes Iron Tacks §

Ounce	1	1½	2	2½	3	4	6	8
Per pound	$1.60	1.30	1.15	1.00	.85	.70	.55	.47
Ounce	10	12	14	16	18	20	22	24
Per pound	.45	.44	.43	.42	.42	.42	.42	.42

Gimp and Lace Tacks.

Ounce	1	1½	2	2½	3	4	6	8
Per pound	$1.60	1.16	.90	.80	.70	.60	.44	.36
Ounce	10	12	14	16	18	20	22	24
Per pound	.34	.32	.31	.30	.30	.30	.30	.30

Tinned Gimp and Lace Tacks.

Ounce	1	1½	2	2½	3	4	6	8
Per pound	$2.20	1.65	1.40	1.25	1.10	.85	.60	.50
Ounce	10	12	14	16	18	20	22	24
Per pound	.48	.46	.45	.44	.44	.44	.44	.44

Copper and Brass Tacks.

Ounce	¼	⅜	1	1½	2	2½	3	4	6 and longer.
Per pound	$3.00	2.00	1.50	1.10	.90	.80	.70	.60	.56

Any of the above kinds, Tinned or Coppered, not specified, 15 cents per pound advance on above prices. Add for ½ pounds 1 cent to list. Add for ¼ pounds 2 cents to list.

Carpet Tacks Put up by Count.

Steel Carpet Tacks.

		6	8	10	12
Ounce					
75 in a paper.	Per dozen	$0.33	.37	.43	47
100 in a paper.	Per dozen	.38	.42	.48	.52
250 in a paper.	Per dozen	.95	1.05	1.20	1.30
500 in a paper.	Per dozen	1.90	2.10	2.40	2.60

Tinned Steel Carpet Tacks.

		6	8	10	12
Ounce					
75 in a paper.	Per dozen	$0.48	.53	.68	.77
100 in a paper.	Per dozen	.53	.58	.73	.82
250 in a paper.	Per dozen	1.33	1.45	1.83	2.05
500 in a paper.	Per dozen	2.66	2.90	3.66	4.10

* Cents per dozen papers. † Cents per pound. § All kinds except Gimp, Lace, Brush, Looking-Glass. ‖ Including Carpet. ‡ In pound papers or bulk.

A Shoe-Finders' list was also adopted, which is subject only to a discount of 2 per cent. for cash, such goods to be delivered in New York, Boston, Philadelphia, Baltimore and New England points, but to other points not exceeding 25 cents per 100 pounds freight allowed.

Freight Classification.

From a well-known manufacturer of Hardware specialties we have received the following letter with reference to the hardships of the existing freight classification, under which many goods heavy and comparatively inexpensive are required to go as third class. The points which they make in regard to this matter are as follows:

1. Articles of iron acid coppered, which are sold in quantities for 2¾ cents per pound, are packed loose in boxes, kegs or barrels and weigh heavily. These goods, before being dipped or coppered, which is merely a cheap method of finishing at an expense of less than ⅛ cent per pound, are shipped and accepted by railroads as Iron Castings, fifth class, and after being coppered should certainly be classified no higher than fourth class.

2. Many articles of Castings that are tinned, japanned or galvanized sell at 4 cents per pound They are prior to being finished simply Castings, fifth class but after being finished are raised to Hardware, third class. We think that they should be given an individual classification of at least fourth class.

3. Cast-iron Frame Pulleys now classed and shipped as Iron Pulleys O. R. B. third class. These Pulleys sell for about 3⅛ cents per pound and are packed loosely in boxes, kegs and barrels, and should be classified by themselves as Pulleys (Window or Sash) as at least fourth class.

We might go on and cite many other articles, but above will show, we think, that present classification is in many snstances unjust and made up without due regard to weight, bulk and value of goods.

A recent issue of the Cleveland *Plain-dealer* contains the following with reference to the classification of Locks and the position of the Perkins Lock Mfg. Company, of that city, in regard to the matter:

The Perkins Lock Company complain that they are discriminated against by the present classification on Locks The company seem to have a good case, and a number of the railroad men think the claim is right. The Freight Committee were appealed to, and after a long meeting yesterday in which the matter was thoroughly discussed the committee promised to render their assistance in obtaining relief from what the Lock company say is an injustice and discrimination. In the old classification Locks were placed in the third class with Hardware. In the new classification they are placed in the second class, while Hardware is left in the third class. The company claim that the Locks are sold to wholesale dealers who ship them as Hardware, paying less freight than the manufacturer, which was a discrimination if allowed. The committee were almost unanimous in the opinion that such a proceeding was a discrimination, but were at a loss to remedy it, as it would be impracticable to inspect every box of goods received and marked Hardware. The company claim further that they did not manufacture an expensive Lock, but that most of them were cheap. The Perkins company are compelled to pay as much freight on these cheap Locks as other mannfacturers who ship Locks valued at from $1 to $20 apiece. This was claimed to be a discrimination. The company decided to write to the Classification Committee asking that a change be made.

Trade.

From Louisville, Ky., we have the following advices as to the condition of the Hardware market:

The Hardware trade for the past week has been quite as brisk and large in volume as for several reports, there seeming to be no slacking off in demand of the retail trade on the jobbers, except in some lines where the dealers are asking a price near the manufacturers' figures. The season so far is remarkably good for farm work and outdoor improvements, and those dealers making specialties of contractors' goods are kept as busy as they care to be. Houses like Watkins, Pears & Co., of this city, and Columbus, Ohio, jobbers in Doors, Sash and Blinds, say they have never known such business before, and it comes from all parts of the country. One has only to visit the cities and towns through this region of the South to see what a spirit of betterment pervades the whole country where a moderate amount of prosperity reigns. Our jobbers are not buying very heavily; having good stocks, they are kept busy distributing them to the best advantage. "It is no trouble to sell goods" the traveling men say, but the proprietors are watching closely to get the most profits.

Bar-Iron remains the same as last week, 1.90 cents from store, which, together with other Wagon Goods and Nails, constitute a large part of the daily shipments. Cut Nails have advanced a little from $2.25 to $2.35, from store, some dealers holding a $2.50 rate. Wire-Nails bring from $2.50 to $2.70 and Barbed Wire, 3.60 to 3.70 cents. Manufacturers of the latter goods have in some instances advanced to 3.85 cents delivered Ohio River points, and claim that this is not high. Some jobbers are in the market, but cannot make up their minds to buy at 3.75 cents and sell at 3.70 cents, which figure some of their competitors are making.

Cut Nail mills are not pushing sales, and are limiting their agents to small amounts for their trade. A sale of 10,000 kegs was made to one house recently, showing confidence in the $2.25 price at mill.

Items.

Hobbs Hardware Company, London, Canada, manufacturers and importers and wholesale dealers in Hardware, Paints, Oils, Glass, &c., have issued a noble catalogue of 1116 pages, which is devoted to the display of the extensive line of goods which they handle. The volume is comprehensive in its range, covering Builders' Hardware, Tools, Cutlery, staple goods of every kind in good variety, Guns and related lines, House-Furnishing Goods, Fittings, Iron and Brass Steam and Water Supplies, Wire Goods, Agricultural Implements, Bird-Cages, Glass, Paints, Brushes, Granite-Ware, Tin-Ware, Tinners' Trimmings, &c. The catalogue is copiously illustrated and brief descriptions of the goods are given, the list prices being, however, omitted. A pleasant effect is produced by the representation in several instances of the bronzing or other finish of the goods, while in some cases labels are reproduced in *fac-simile*. But a marked advance which is to be observed in the getting up of the volume is the fact that a number of brilliantly colored pages, faced with tissue paper fly-leaves, are inserted, representing such goods as cases of Scissors finished in plush or leather, also cases of Knives, Spoons, Forks, &c., which are thus brought prominently to the attention of the trade and their appearance and style shown. The same feature is introduced in the portion of the catalogue devoted to Window Glass, in which a great many different patterns of Enameled or Etched Glass are represented in colors, Rosettes for corner-pieces, Door Panels, Fanlights, Borders and a variety of ornamental Glass for vestibule doors, transoms, bank and office railings, &c., being thus represented. The Paint department also shows the different colors. It is obvious that the attractiveness of the book is much increased by the brilliancy of these pages, while at the same time the goods are shown off to best advantage. This is a feature which as a new departure is deserving of special mention. The whole volume is exceedingly creditable to the enterprise of the house issuing it and will be found a valuable aid to its customers. The catalogue is prefixed by a very satisfactory index occupying 36 pages, in which the full-faced type in which the names of the goods are printed is well suited to its purpose.

Gaston, Weston & Ladd, 46 Beekman street, New York, the manufacturers of Liquid Prestoline for polishing purposes, have put upon the market a full line of sizes of Prestoline Paste. They claim this to be superior to any paste or pomade heretofore made and present strong testimonials to substantiate their claims. The Bureau of Steam Engineering of the United States Navy Department has furnished a copy of the report of the Experimental Board recommending the use of Prestoline Paste. They say of it:

Several boxes were used in cleaning bright work and brass in the engineering department and it was found to answer its announced purpose admirably. It removed rust and stain quickly, produced a high polish easily, and to the extent of our observation gave no indication of injurious effect upon the material to which it was applied. We are of the opinion that it would be an excellent substitute for the scouring material now in use in the engine department of naval vessels, and we respectfully recommend it.

Butts & Ordway, Boston, Mass., announce that they are now making Hub Thill Springs japanned, as well as in former styles of finish.

At the fair now in progress at Portland, Ore., a unique feature of Machinery Hall

is the Wire-Mat house in the exhibit of Staver & Walker. The house is constructed entirely of Brass and Steel Wire Door-Mats and presents a novel and attractive appearance. The exhibit of this firm is very extensive, the above being only one feature of it, as they show in addition Vehicles, Harness, Robes, Whips, &c., besides machinery.

The trade will observe the announcement on page 68, in which Schoverling, Daly & Gales, 302 Broadway, New York, call attention to Marlin's Repeating-Rifle, of which an illustration is given showing its construction. Attention is also called to the other goods in this line.

Sise, Gibson & Co., 118 Chambers street, New York, issue an especially effective circular and price-list of their Wrought-Brass Self-Locking Horseshoe Padlocks, a description of which is given on page 662. In this circular *fac-similes* are given of the labels in brilliant color, thus producing a striking effect. The list prices of the goods are also given, with brief description.

Surpless, Dunn & Alder, 97 Chambers street, New York, advise us that the York Wire Cloth Company, York, Pa., for whom they are general agents, have been granted the highest award for the best display of quality for their Fly-Screen Wire-Cloth at the Pennsylvania State Agricultural and York County Agricultural fairs.

Palmer Hardware Mfg. Company, Troy, N. Y., on the 22d inst. filed in the United States Circuit Court a complaint against Empire Portable Forge Company, Lansingburg, N. Y., alleging infringment of two patents under which the former company manufacture the American Frame Pulley. The bill prays for the usual injunction and recovery of profits and damages to the amount of $50,000.

Announcement is made October 15 that the New London Scythe Company partnership, New London, N. H., has been dissolved by mutual consent. All persons indebted to the firm and all persons having demands against the firm are requested to adjust the same with Nahum T. Greenwood, Concord, N. H., to whom all correspondence should be addressed, and who is alone authorized to use the firm's name in liquidation.

American Machine Company, Philadelphia, Pa., for whom John H. Graham & Co. are agents, 113 Chambers street, New York, illustrate in their advertisement on page 68 the Perfection Meat-Cutter, of which a description is given on page 663. Of this machine, which has recently been put on the market, three sizes are made. It is referred to as especially adapted for family use.

The George Worthington Company, Cleveland, Ohio, have issued their circular of fall and winter goods. It relates especially to Stove-Boards, Coal-Hods, Elbows, Vases, Sleigh-Bells, Sleighs, Skates, Snow-Shovels, Lanterns and Lamps, attention being called incidentally to the extensive assortment of goods in other lines which is carried by the company. The pamphlet contains a mammoth colored illustration of the improved Ansonia Central-Draft Lamp, the incorporation of which in a Hardware price-current is a new departure.

Tabb Bros. & Dimmock, 107 Hopkins place, Baltimore, Md., are now occupying their new store, which has been erected on the site of the one which was burned about a year ago. It is a handsome and capacious building, admirably adapted to their purposes and fitted up in the most approved manner for the accommodation of their extensive trade. The sample-room is exceptionally attractive, and will compare well, we are advised, with any in the county. Their catalogue relating to Guns, Rifles, Pistols, Ammunition, Sporting Goods, &c., indicates the completeness of their assortment in this department. It is a well-printed pamphlet of more than 40 pages, and calls attention also to the fact that they are importers of and wholesale dealers in Hardware, Cutlery, &c. The point is emphasized that no goods are sold at retail.

The Iowa Farming Tool Company, Fort Madison, Iowa, have issued their catalogue for the coming season It is printed in the usual attractive style, the paper and presswork being of exceptional quality and the pamphlet elegantly gotten up. It represents the large line of goods which are familiar to the trade and contains information in regard to the company's operations and a complete and satisfactory code convenient in ordering goods. A view is given of the factory as at present constituted, comprising nine workshops, nine warehouses, with 20 floors for storage. It is stated that the works have run continuously for 35 years.

Walbridge & Co., 317, 319 and 321 Washington street, Buffalo, N. Y., have issued their illustrated circular of winter goods. It bears date October 14. It represents a line of Axes, Saws, Hay-Knives, Meat-Cutters, Cutlery, Skates, Weather-Strips, Sleigh-Bells, Snow-Shovels, Sleighs, Iron Toys, Silver-Plated Ware, &c. Attention is called to their line of Pocket-Cutlery, the quality and the finish of which are alluded to, while the patterns are referred to as exceptionally desirable.

The Lunkenheimer Brass Mfg. Company, Cincinnati, Ohio, have issued a small illustrated price-list of a size to fit an ordinary business evelope, in which they give a description of a number of their specialties. The peculiarity of the catalogue is that the leaves are perforated so as to be readily detatched, thus permitting them to be sent to the company for discount or quotation. A dealer desiring quotations on any of these goods tears out the page, writes his name on it and sends it to the company, who insert the discount, rewrite the dealer's name in copying ink, and then, as the whole circular is printed in copying-ink, take a press-copy for future reference and mail it back. The page can then by the dealer be reinserted in the pamphlet pasted upon the stub. It will be perceived that in this way the quoting of prices on any given article is facilitated, while a complete record is kept of the transaction both by the manufacturers and their customer. The catalogue, we are advised, will be furnished to the large supply houses with their names printed on the same, so that they can be distributed in their mail.

Kidd's Steel Wire Company, Harmarville, Pa., issue a convenient price-list of their Kidd Polished Steel Rods and Coiled Wire made from special converted crucible cast-steel. These rods are described as drawn to micrometer caliper and are guaranteed the finest and most acurate stock made.

The Harrington & King Perforating Company, of Chicago, have this year largely increased their facilities for manufacturing Perforated Metals of all descriptions, and have enjoyed a much heavier trade in consequence of their ability to handle it. They have had a good foreign demand for their products, and recently made a large shipment to Russia The company state that the use of Perforated Metal is constantly widening and that nearly every day a new application of it comes to their notice.

We are advised that the Punxsutawney Hardware Company have removed from Punxsutawney to Harrisburg, Pa., and the style of the concern has been changed to D. M. McConrick & Co.

Prescott Hardware Mfg. Company, Chicago, Ill., issue a catalogue which gives an exceptionally full and detailed description of their Prescott Trackless Sliding-Door Hangers. The different patterns are described and very full directions given in regard to their use and the manner of putting them up, the advantages possessed by them being also pointed out. A number of testimonials are given from parties who have used them. The information given for carpenters and builders in regard to the construction of the pockets for the doors and other points in regard to the use of the Hangers will be found of especial value, the illustrations making the instructions explicit and clear.

Under date of October 16 notice is sent to the trade that John Bellamy, doing business as Nichols, Bellamy & Co., 189 Devonshire and 669 Washington streets, Boston, has made an assignment to Edward A. Wilkie of all his property for the benefit of his creditors. It is stated creditors who wish to see the assignment or obtain any information can do so at the office of Z. S. Arnold, 20 Pemberton square, Boston.

Brettell & Wilson, 215 and 217 North Water street, Rochester, N. Y., issue a catalogue and price-list of Garlock's Packings, including the Elastic Ring and Section Packings, also Garlock's Spiral Packing. Illustrations are given showing the special features of these goods.

The market on Iron Fittings remains without material change, but is characterized by the same firmness which has been found in it for several weeks, with an increasing tendency toward slightly higher prices. There has been some conference among the manufacturers with reference to united action, but thus far nothing has been done. Some of the makers have withdrawn their former quotations and announce higher prices. There is an excellent demand for the goods and most of the manufacturers are well filled with orders.

Obituary.

Announcement is made by F. W. Heitmann & Co., Houston, Texas, of the death of F. W. Heitmann on October 3. Mr. Heitmann was born at Pottsdam, Germany, June 5, 1828. The business will be carried on as heretofore, the active management of the same being still vested in his son, F. A. Heitmann. The firm name will remain unchanged.

Exports.

PER BRIG HAVILAH, SEPTEMBER 30, 1889, FOR PORT ELIZABETH, SOUTH AFRICA.

By R. C. Layton, Jr.—67,823 pounds Agricultural Implements.
By Goulds Mfg. Company.—39 Pumps.
By Coombs, Crosby & Eddy.—18 dozen Saws.
By Corner Bros. & Co.—5 cases Pumps and Parts, 41 cases Hardware, 2 cases Tools, 7 cases Agricultural Implements.
By R. W. Forbes & Son.—8 packages Carriage-Ware, 1 dozen Saws, 6 dozen Axes.
By A. Field & Co.—20 Blocks, 3 dozen Meat-Cutters, 42 dozen Locks, 24 dozen Scales, 9 dozen Forks, 15,000 Cartridges, 4800 pounds Nails.
By Oelrichs & Co.—10 dozen Hardware.
By J. Norton & Sons.—1 Rifle, 1000 Cartridges, 20 Scales, 1 Hand-Cart, 2 carriages, 51 cases Plows, 5 Road-Scrapers, 10 Store-Trucks, 15 Corn-Mills, 3 packages Hardware, 5 Carts, 5 Weighing-Machines, 1 case Manufactured Steel.
By W. H. Crossman & Bro.—150 dozen Handles, 10 Hand-Carts, 5 dozen Picks, 10 Hand-Carts, 1 dozen Carts, 10 dozen Axes, 48 dozen Sledge-Hammers, 10,056 pounds Sisal Rope, 1800 pounds Sash-Weights, 3 dozen Sash-Cord, 6 Forges, 5000 pounds Nails, 200 Plows, 60 dozen Axes, 20 dozen Picks, 16,000 pounds Nails.

REVIEW OF THE WHOLESALE MARKET IN PAINTS AND OILS.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Paints and Colors.

The volume of business in this branch of trade has shown some improvement over that of the week previous, but the movement of goods is still rather below the average for the season, and a conservative policy of the most pronounced type seems still to be followed by buyers generally. The character as well as the volume of business indicates a smaller actual consumption than had been calculated upon, and buyers have gone no further than to provide for immediate wants in the absence of conditions pointing to, or even suggestions of, any important variation in prices. Supplies of all lines of Pigments and Colors are liberal, the competition for orders is somewhat keen in most quarters, and where not controlled by combinations prices are slightly irregular.

White Lead.—The official prices and rebates are adhered to by the trust and by individual corroders. The large jobbers appear inclined to adhere to the prescribed terms also. Small jobbers and some of the large local retailers disturb matters, however, by giving their customers small lots at the very lowest net quantity prices, making Lead merely a leader to orders for other Pigments and Colors in which the margin of profit is wider. The volume of business during the week has been only fair. Sample lots of the product of the Standard White Lead Company (anti-trust) have been placed upon the market and the Lead is pronounced first class.

Zincs.—The demand for American Oxide has been rather slow and the supply offering from first hands is rather larger. Prices are not quoted lower, but the market is less firm in tone. Foreign Zincs are firmly held at previous prices and selling to about the usual extent in moderate quantities.

Red Lead and Litharge.—In these articles there has been about the average business and the former prices and terms prevail.

Orange Mineral.—Foreign is firmly held and meeting with fair sales, but the movement of domestic is moderate.

Colors.—Dry Colors in general have been rather slow and, outside of some few descriptions for grinders' use, the dealings have barely equaled those of the preceding week. Prices are a little irregular, but showing no quotable change.

Miscellaneous.—There has been a very steady demand for Whiting and Paris White and former prices are very well maintained. Clays are without important change in value or more than ordinary demand.

Animal and Vegetable Oils.

There has been but little change in this line the past week. Prices for Lard-Oil show a slight decline, while Cotton-Seed and crude Sperm, on the other hand, are a shade higher, the balance of the list keeping very steady. Most reports reflect a satisfactory volume of business, and increased sales are noted in several instances, more particularly on home trade account. With few exceptions values are on a low level, and it is the general impression that any change otherwise than in the direction of improvement is improbable.

Lard-Oil.—Prime, present make, has eased off to 54¢ for round lots and 55¢ for jobbing quantities. Extra Winter shows a similar change. The decline, however, is merely a reaction from a rather excessive advance made early in the week and has led to an increased volume of business. Fairly liberal sales have, in fact, been made for both home account and export at the modified prices.

Linseed-Oil.—City-Pressed Oil is firmly held at 60¢ for Raw and 62¢ for Boiled. Out of-town brands (Raw) sell in a moderate way at 57¢ @ 58¢. Competition from the latter is unimportant in this make, but is such at some other points that prices are not as uniform as heretofore. The volume of business continues fairly large.

Cotton-Seed-Oils.—Crude-Oil is 1¢ higher on actual sales, quite firm at the advance and in better demand. A fair local business can be recorded, besides which some extensive transactions with large Western consumers have been made. Qualities that were difficult to sell at 31¢ here a few days are now bringing 32¢ readily. The refined product is also in better demand and firmer.

Sperm and Whale Oils.—There have been sales of crude Sperm in New Bedford at 63¢ for both export and home account to the extent of 2600 barrels, and the manufactured Oils are firmer, although without quotable change. No change has taken place in the position of Whale-Oils and prices, as quoted, are nominal.

Menhaden-Oil.—During the latter portion of last week there was some improvement in the fishing, but export and home trade purchases have been sufficient to prevent any accumulation of crude Oil, and prices remain very steady. Pressed and Bleached Menhaden and Bank and Straits Oils are meeting with quite free sale at firm prices.

Cocoanut-Oils.—Ceylon is meeting with steady sale at 5¼¢ on the spot and some lots have been sold to arrive at 5½¢. The small quantities of Cochin coming in are disposed of at 6½¢. Cuban is out of the market. Domestic sells at 5¢ in very fair quantities.

Olive-Oil.—Italian, in barrels, has been selling at 71¢ @ 73¢, but in moderate quantities, and prices are still relatively lower here than in the foreign market.

Miscellaneous.—Palm, Red and Tallow Oils are without change as to value and are selling in a moderate way only.

Wholesale Prices.

NEW YORK, October 23, 1889.

Animal and Vegetable Oils.

Linseed, City, raw	per gal	60	@	..
" " boiled	"	63	@	..
" Western, raw	"	57	@	58
Lard, City, Extra Winter	"	56	@	57
" " Prime, present make	"	54	@	55
" " Extra No. 1	"	45	@	48
" " No. 1	"	38	@	42
" Western, prime	"	54	@	55
Cotton-seed, Crude, prime	"	31	@	32
" " off grades	"	..	@	30
" Summer Yellow, prime	"	39	@	40
" " " off grades	"	37	@	38
Sperm, Crude	"	63	@	65
" Natural Spring	"	67	@	68
" Bleached Spring	"	72	@	73
" Natural Winter	"	74	@	75
" Bleached Winter	"	79	@	80
Whale, Crude	"	38	@	40
" Natural Winter	"	45	@	..
" Bleached Winter	"	47	@	..
" Extra Bleached	"	49	@	..
Sea Elephant, Bleached Winter	"	54	@	55
Menhaden, Crude, Sound	"	22	@	23
" Crude, Southern	"	21	@	23
" Light Pressed	"	28	@	29
" Bleached Winter	"	34	@	..
" Extra Bleached	"	38	@	39
Tallow, City, prime	"	..	@	50
" Western, prime	"	..	@	47
Cocoanut, Ceylon	"	..	@	5¾
" Cochin	"	..	@	6½
Cod, Domestic	"	31	@	32
" Foreign	"	34	@	35
Red Elaine	"	36	@	38
Red Saponified	₱ lb	4½	@	5
Bank	per gal	25	@	26
Straits	"	27	@	28
Olive, Italian, bbls	"	71	@	73
Neatsfoot, prime	"	62½	@	75
Palm, prime, Lagos	₱ lb	..	@	5¾

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test	per gal	8	@	9
" " 15 " "	"	8½	@	9½
" " summer	"	6	@	7
Cylinder, light, filtered	"	15	@	20
" dark, "	"	14	@	20
" " steam refined	"	10	@	18
Paraffine, 23½ @ 24 gravity	"	11	@	12
" 25 "	"	10	@	11
" 28 "	"	8½	@	9
" red, 21 @ 22 gravity	"	14	@	14½
" " 22½ @ 23 "	"	12	@	13

Paints and Colors.

Barytes, Prime White	₱ ton.	$21.00	@	21.50
" American Refined	"	18.00	@	20.00
" " No. 1	"	16.00	@	17.00
" " No. 2	"	14.00	@	15.00
" " off-color	"	12.00	@	.....
Blue, Celestial	₱ lb	5½	@	7½
" Chinese	"	45	@	50
" Prussian	"	20	@	35
" Ultramarine	"	7	@	25
Brown, Spanish	"	½	@	1
" Vandyke, American	"	3	@	3½
" " English	"	6	@	8
Black, American Drop	"	8	@	10
" English "	"	12	@	14
" Frankfort "	"	5	@	18
Black, Lamp, common	"	12	@	18
" " medium	"	19	@	25
" " prime	"	27	@	33
Carmine, No. 40, in bulk	"	3.10	@	..
" " in boxes or barrels	"	3.20	@	..
" " in ounce bottles	"	4.20	@	..
Chalk, in bulk	₱ ton.	.....	@	2.00
" in bbls	₱ 100 lb	30	@	40
China Clay, English	₱ ton.	13.50	@	18
" Southern	"	10.00	@	11.50
Cobalt Oxide, prep'd	₱ lb	2.90	@	..
" " black lots 100 lb	"	2.60	@	..
" " less	"	2.65	@	..
Crocus Martus, English	₱ lb.	1½	@	2½
" American	"	1½	@	2½
Green, Paris, in bulk	"	20	@	..
" " 170 @ 175 lb kegs	"	20½	@	..
" " small packages	"	22	@	26½
" Chrome, ordinary	"	8	@	11
" " extra	"	12	@	13
" " pure	"	22	@	25

REBATES, &c.—Paris Green.—Rebates to buyers of 500 to 1000 lb during season, ¼¢ ₱ lb; to buyers of 1000 to 2000 lb, 1¢; to buyers of 2000 to 4000 lb, 1¼¢; to buyers of 4000 to 10,000 lb, 2¢, to buyers of 10,000 lb and over 2½¢. Buyers of 5 tons or over at one time receive an additional ¼¢ ₱ lb.

Lead, American White, dry	₱ lb	6¾	@	7
" " in oil	"	7	@	7¼
" " Red	"	6¾	@	7
Litharge, in barrels	"	6¼	@	..
" " 500-lb lots	"	7	@	..
" " smaller "	"	7¼	@	..

REBATES, &c.—White Lead. ½¢ ₱ lb rebate on purchases of 500 lb and over, if paid for within 60 days of date of invoice; terms, 60 days or a discount of 2½ % if payment within 15 days from date of invoice. Extra rebate of ¼¢ ₱ lb, payable July 1 and December 31 to buyers of a total of 10 tons pure Lead during the year.

Litharge.—Rebate of ½¢ ₱ lb for cash in 60 days and 2½ % additional for cash in 15 days.

Ocher, Rochelle		1.35	@	1½
" French Washed		1½	@	2½
" German Washed		1¾	@	3
" American		¾	@	1¾
Orange Mineral, English		8½	@	9½
" French		9	@	9¾
" German		8½	@	9½
" American		8	@	8½
Paris White, English Cliffstone		90	@	1.10
" American		70	@	80
Red, Indian, English		5½	@	7
" " American		2	@	6
" Turkey		9	@	14
" Tuscan		9	@	11
" Venetian, American	₱ 100 lb.	90	@	1.25
" " English		1.00	@	1.45
Sienna, Italian, Burnt and Powd.	₱ lb	5	@	6¼
" " Burnt Lumps	"	1½	@	3½
" " Raw, Powdered	"	5	@	6¾
" " " Lumps	"	2	@	3½
" American, Raw	"	1½	@	1¾
" " Burnt and Powdered	"	1½	@	1¾
Talc, French	"	1¼	@	1½
" American	"	1	@	1¼
Terra Alba, French	per 100 lb	72½	@	80
" English	"	80	@	85
Terra Alba, American No. 1	"	70	@	75
" American No. 2	"	38	@	40
Umber, Turkey, Bnt. and Powd.	₱ lb	3½	@	4
" Burnt, Lumps	"	2¾	@	3
" Raw and Powdered	"	3¾	@	4
" Raw, Lumps	"	2¾	@	2¾
" Burnt, American	"	1¾	@	1¾
" Raw, "	"	1¼	@	1¾
Yellow, Chrome	"	10	@	25
Vermilion, American, Lead	"	11½	@	13
" Quicksilver	"	65	@	70
" English Imported	"	82	@	85
" Imitation English	"	8	@	25
" Trieste	"	75	@	77
" Chinese	"	88	@	90
Whiting, Common	₱ 100 lb	40	@	45
" Gilders'	"	55	@	65
Zinc, American, dry	₱ lb	4¼	@	4¾
" French, Red Seal	"	..	@	7¾
" " Green Seal	"	..	@	7¾
" " V. M. X	"	6	@	6¼
" Antwerp, Red Seal	"	..	@	7
" " Green Seal	"	..	@	7¼
" German, L. Z. O	"	..	@	6
" V. M. in Poppy Oil, G. Seal, lots of 1 ton and over	"	10	@	10½
lots less than 1 ton	"	10¼	@	10¾
Zinc, V. M. in Poppy Oil, Red Seal, lots of 1 ton and over	"	9¼	@	9¾
Lots of less than 1 ton	"	9¾	@	10

DISCOUNTS.—French Zinc.—Discounts to buyers of 10-bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Blue, Chinese	₱ lb	35	@	40
" Prussian	"	20	@	45
" Ultramarine	"	12	@	18
Brown, Vandyke	"	7	@	12
Green, Chrome	"	8	@	13
" Paris	"	16	@	18½
Sienna, Raw	"	7	@	13
" Burnt	"	7	@	13
Umber, Raw	"	7	@	10
" Burnt	"	7	@	10

Glue.

Low Grade	₱ lb	8	@	10
Cabinet	"	12	@	14
Medium White	"	13	@	15
Extra "	"	17	@	20
French	"	9	@	20
English	"	10	@	15
Irish	"	12	@	15

Wrought-Brass Self-Locking Horse-shoe Padlocks.

The Barnes Mfg. Company, New Haven, Conn., are manufacturing the padlocks shown in the accompanying illustrations, Fig. 1 showing their Nos. 602 and 603 and Fig. 2 their Nos. 604 and 605. The

Fig. 1.—Wrought-Brass Self-Locking Horse-shoe Padlocks.—No. 602.

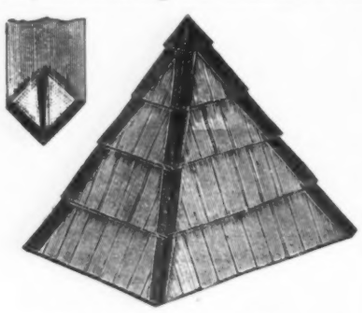
cuts represent the locks full size. These goods have heretofore been made in larger sizes, but these four smaller sizes have recently been put on the market. Nos. 602 and 603 are ⅝ inch and Nos. 604 and 605 1 inch. All the locks have two tumblers, and a nickel-plated key is furnished with each one. As indicated by the name, they are self-locking and have brass

Fig. . .—No. 605.

shackle. These padlocks are packed ten changes to the dozen and one dozen locks in a box. Extra keys are furnished at $1 per dozen. Sise, Gibson & Co., 118 Chambers street, New York, are sole agents for the manufacturers.

The Prentice Metallic Hip Shingle.

The Metallic Hip Shingle Company, of Nos. 313 and 315 Adams street, Toledo, Ohio, are directing the attention of the



Prentice Metallic Hip Shingle.

building trades to the merits of the Prentice Metallic Hip Shingle, of which they are the sole manufacturers. These shingles are so constructed, the manufacturers state, that they afford complete protection to the hips and prevent any rain or snow getting into them. The claim is also made that the points cut from valley shingles may be put on the hips, thus effecting a saving of at least four shingles on each course laid. The illustration shows one of these shingles detached and the general appearance of a hip upon which the Prentice shingles are used. The claim is made that they may be readily put on old roofs; that they are rapidly put on, and that they constitute a covering for each course of shingles or slate, holding the latter firmly in place without exposing the nails. These shingles have been largely introduced throughout several of the Western States and appear to be rapidly gaining in favor in other sections.

Palmer's Ratchet Sash-Center and Transom-Adjuster.

In the accompanying engravings we represent the article named above, which

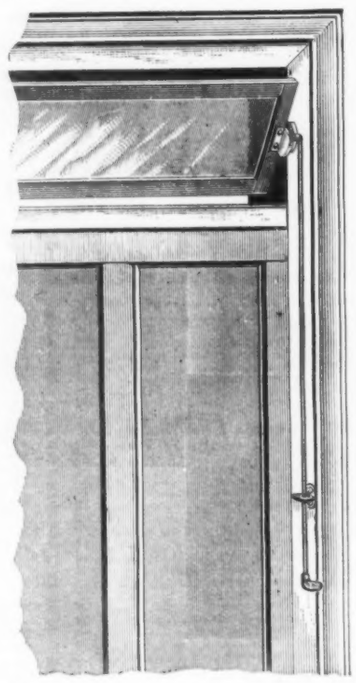


Fig. 1.—Palmer's Ratchet Sash-Center and Transom-Adjuster in Use.

is manufactured by the Palmer Hardware Mfg. Company, Troy, N. Y., for whom Wm. H. Jacobus is agent, 90 Chambers street, New York. Fig. 1 shows the adjuster applied to a sash pivoted horizontally, while Fig. 2 indicates the manner in which the contrivance is attached to the sash and frame and shows the ratchet by the use of which in connection with the lever the adjuster is operated and locked automatically at any desired angle. In securing the appliance in place the

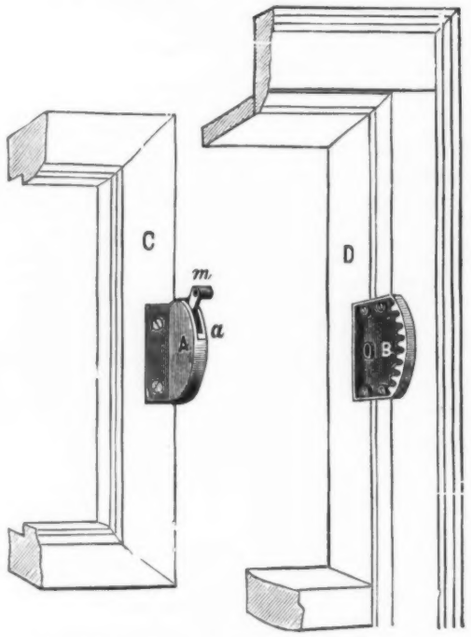


Fig. 2.—Method of Attaching to Sash and Frame.

following directions referring to Fig. 2 are given by the manufacturers: Place the plates A and B together, then let plate B in the casing D flush, and so that the flange on plate A will be flush with the face of the sash C when in proper position, and same with opposite pivot, which is also provided with a flange. Then turn plate A to its full throw on plate B, when the sash C may be slipped edgewise over the flange on plate A and opposite pivot (between the ends of the stops when formed on the casing). Then secure sash by screwing flanges to the surface. It is also suggested that the casement plates should be secured in place before the sash is put in, the sash plates after the sash is in position. It is obvious that the adjuster may be applied to a sash hung vertically as well as to the one shown in Fig. 1. The device may be operated by cord, sash-lift or rod. The manufacturers call attention to the fact that it locks itself automatically the instant it is disengaged, thus preventing, it is claimed, the accidents common to those that have to be fastened with one hand while held with the other. The sash thus locked cannot be changed from its position by the wind or by intruders seeking to effect an entrance. The sash being centrally pivoted is perfectly balanced and will not warp out of shape like those supported only at one corner. The simplicity of the adjuster and its ornamental appearance are also alluded to. It is made regularly in two sizes of bronzed iron, plain brass, plain bronze metal and nickel-plate, but special sizes and finishes are made to order.

The contract for the construction of the Colorado mineral palace at Pueblo was awarded on the 15th inst. The architecture is to be Egyptian in style. The building will be one of the largest and handsomest in the West, costing over $250,000. When opened it will contain gems and mineral specimens from the mines of Colorado and all over the world, the value of which will be very great. The exhibit is to be permanent and open the year round.

The Perfection Meat-Cutter.

The American Machine Company, Philadelphia, Pa., for whom John H. Graham & Co., 113 Chambers street, New York, are agents, are manufacturing the meat-cutter shown in the engravings herewith

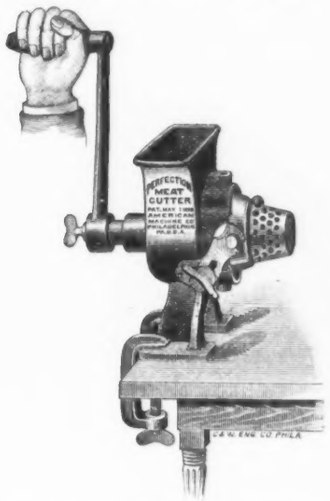


Fig. 1.—The Perfection Meat-Cutter.

given. In Fig. 1 a general view of the cutter clamped to a table is afforded. Fig. 2 illustrates the parts of which the machine is composed, the names of these parts being designated, thus facilitating a conception of the construction of the machine, and Fig. 3 shows the sizes of openings in the cones furnished by the manufacturers. The cutter is held in place on

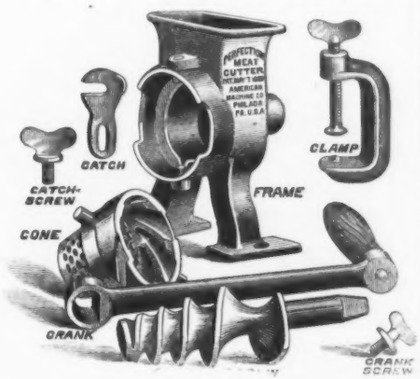


Fig. 2.—Parts of the Machine.

the table either by two clamps which are furnished with each machine or by screws, holes for which are drilled in its base, as shown. The machine is easily taken apart and put together. To accomplish the latter it is only necessary to put the cutting-screw in frame. The cone is pushed tight on cutting-screw, the grooves in cone engaging with the pins in frame. Holding the cone firmly in place with the left hand the catch is dropped over pin on

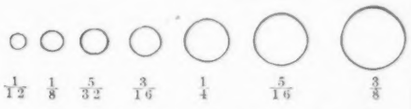
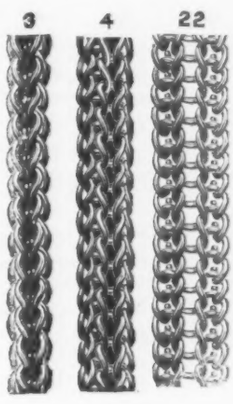


Fig. 3.—Assortment of Cones Furnished.

cone and the catch-screw tightened, thus locking all parts together and making the machine ready for use. The meat, &c., to be cut is dropped in hopper in either large or small pieces or in long strips, as desired, which are only required to be of such size as will go in the hopper easily. The point is made that any wear that may take place in course of time in cone or cutting-screw is always taken up in putting cone in machine, and such wear instead of dulling the cutting edges sharpens them. The facility with which the machine cuts raw meats, cooked meats, chicken, lobsters, oysters, cod-fish, material for mince pies and fruit cakes, almonds, cocoanuts, as well as its utility in pulverizing stale bread and crackers for frying purposes, chopping vegetables for soup, &c., are alluded to. The cone furnished regularly with the machine has holes $\frac{5}{32}$ inch in diameter, but cones with larger or smaller holes can be had of sizes shown in Fig. 3. The cutter is made in three sizes, which cut $\frac{3}{4}$, $1\frac{1}{4}$ and 2 pounds per minute respectively. The goods are packed half dozen in a case.

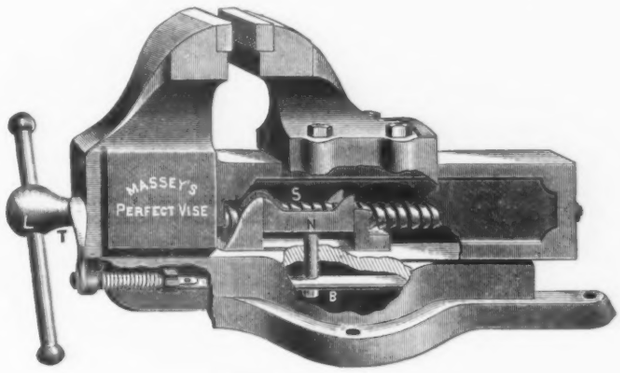
Chain Specialties.

The W. C. Edge Company, 46 Green street, Newark, N. J., are manufacturing a new line of chain, which is illustrated in the accompanying cuts. From the manner in which these chains are constructed they are designated as knitted or woven chains, and instead of being made in links of the usual form a single wire runs all across the chain, making several



A New Line of Chains.

links, as is indicated, for example, in No. 22, shown herewith. Number 22 is a flat chain which is used principally for decorative purposes, but has been found adapted also for other uses. It is suggested that No. 22, for instance, may be used as a sash-chain, requiring, however, a flat pulley. Nos. 3 and 4 of the illustrations represent round chain made on the same principle, the edges being fastened together, an operation which is performed so neatly that it is difficult, except after a very close examination, to tell where the junction is. This line of chains is made in both steel and brass, and an idea of their strength may be obtained from the statement of tests to which they have been subjected. For instance, it is stated that a No. 3 chain in steel will stand 125 pounds test and in brass 130 pounds. The round chains, Nos. 3 and 4, are referred to as well adapted for sash-chains and are being used to some extent for this purpose, while the whole line of chains are referred to as adapted to saddlery hardware trimmings, draperies and ornamental purposes. The comparative inexpensiveness of the chain is a point which is emphasized in connection with its beauty and strength.



Massey's Perfect Vise.

Massey's Perfect Vise.

T. C. Massey, 11 to 23 South Jefferson street, Chicago, Ill., is putting on the market Massey's Perfect Vise, which is illustrated in the cut herewith given, the construction of the tool being plainly indicated. Attention is called to the rapidity with which a piece of work may be fastened in the jaws of the vise. When the right hand grasps the knob L and handle the fingers of the hand are in position to compress the trigger T, which moves the bar B and releases the nut N from the screw S. The same hand then slides the loose jaw of vise from or against the work, when, on releasing the fingers from the trigger T, the nut engages with the screw. The hand, having remained on the handle, applies the screw, which readily fastens the work. The nut and screw have bevel threads slightly under cut. The knob L and screw are one piece of forged steel. The nut is from $2\frac{1}{4}$ to 4 inches long and has from 10 to 16 threads in it, a bearing, it is stated, that will withstand the heaviest chipping. The vise is made in different sizes and styles.

Two announcements have been made that caused consumers of natural gas to look blue. One came from Youngstown, Ohio, and was that the Mahoning Fuel Gas Company had notified Youngstown manufacturers that they could not supply them with gas after November 1 and were also refusing to make house connections. The other was that New Castle manufacturers had been served with similar notices. It was stated in explanation that the gas companies had attempted to supply too many manufacturers from a limited territory.

Railway enterprise in China is taking another start. In a letter received from Tungchow on September 12 it is stated that from official circles it is learned that most of the contemplated railway from Lukow Kiao, a place lying west of Pekin, to Hankow, a distance of about 3000 li, is estimated at 16,000,000 taels. The building of the southern section will be under the control of Viceroy Chang Chitung. That of the northern section will be in the care of Viceroy Li Hung Chang. Steps are, it is said, to be taken without delay to carry the project into execution.

Washington News.

(*From Our Regular Correspondent.*)

WASHINGTON, D. C., October 22, 1889.

The decision of the Secretary of the Treasury continuing the principle of component material of chief value in the regulation of the duty on lead-bearing silver ores of Mexico has a meaning of deeper significance than a simple matter of tariff and revenue. As already noted in this correspondence for several weeks, the new American minister to Mexico, Mr. Ryan, has been in Washington on leave of absence and has been almost daily in consultation with Secretary Blaine upon a commercial convention which is nearing completion. As the Mexican authorities have made it known that they would meet the American Government more than half way in any arrangements which had in view increased facilities for reciprocal trade, the export of lead-bearing silver ores of Mexico into the United States became a subject of great importance. An effort will now be made to secure Congressional action, but it is not probable that the practice will be changed, as the Democrats would be opposed to the imposition of a duty on these ores and many Western Republicans would be interested in behalf of their constituents in promoting this trade. There is no doubt of the inauguration of a liberal policy in trade with Mexico and the Central and South American countries.

The speakership is beginning to attract attention. Three of the candidates—McKinley, Burrows and Cannon—are now in the city conferring with their friends preparatory to the opening of the contest for the chief seat of authority in the popular branch of Congress. In two weeks from to-day the elections will be over. All the candidates will then be here and begin work in earnest. The Republicans of the New York delegation have called a caucus for the 15th of November, when they will lay down their rule of action. At present they are in favor of Mr. Reed, of Maine. A majority of the Pennsylvania delegation is also for Reed. An effort will be made to vote that delegation as a unit. The strength of Reed has already led to an effort on the part of the West to make a combination against the East. If that should succeed Reed cannot be nominated. In that event his vote will be likely to go to Burrows, which will give him the nomination.

Secretary Tracy has commenced the examination of the reports of his bureau officers, preparatory to the completion of his own annual report. The Secretary has broad ideas concerning the requirements of the Government in a naval establishment and equally liberal views as to the character of ships required, and the outcome will be an increased demand for steel by the Government and private yards to carry on the work of reconstruction of the navy.

The growth of the new navy is progressing quietly but marvelously. The report of the Chief Naval Contractor, which has been submitted to the Secretary of the Navy and will be made public as soon as that functionary can have time to examine its contents, shows the following formidable fleet of vessels now under advertisement, construction or contract or ready for acceptance:

At the New York Navy Yard, the armored line of battle-ship Maine and one 3000-ton steel cruiser.

At the Norfolk Navy Yard, the armored cruiser Texas and one 3000-ton cruiser.

At the Cramp yards, Philadelphia, the cruiser Baltimore, under trial for acceptance by the Government; the cruiser Philadelphia, recently launched; the cruiser Newark, on the stocks; the dynamite cruiser Vesuvius, under firing trial.

At the Roach yards, Chester, the gunboats Burlington and Concord.

From Baltimore, the gun-boat Petrel, just sent to Norfolk for acceptance.

At the Union Iron Works, San Francisco, the cruiser Charleston, sent to the Mare Island Navy Yard for acceptance; the cruiser San Francisco and coast-defense vessel on the stocks.

The vessels thus under construction when completed will constitute a fleet of two armored and three 3000-ton cruisers, four cruisers of the Baltimore type, one dynamite cruiser, one coast-defense vessel and three fast gun-boats. These vessels, except of the armored class, should be in commission within twelve months and the former within two years. The vessels under advertisement or about to be are: Three 2000-ton cruisers, two 1050-ton cruisers (plans completed), one monitor, Thomas design, one Naval Academy practice-ship, one 7500-ton iron-clad ram, one 5300 ton armored cruiser, one dynamite cruiser, Vesuvius class. The entire fleet of new ships building or being built will consist of 23 of the most powerful and fastest war vessels afloat.

PERSONAL.

Thurston Burke, for many years chief chemist of the Edgar Thomson Steel Works, of Carnegie Bros. & Co., Limited, at Braddock, Pa., resigned his position last week. He has been succeeded by John Leins, who is a nephew of the late Capt. William R. Jones.

Thomas C. Carson, of Allegheny City, Pa., who has been connected with the firm of Carnegie, Phipps & Co., Limited, of Pittsburgh, has removed to Denver, Col., where he will represent that firm for the entire State of Colorado.

E. H. Ammidown has resigned the presidency of the American Protective Tariff Association.

George Westinghouse, Jr., the millionaire inventor, of Pittsburgh, visited New York City last week in fine health. He has achieved success as an inventor of new patterns of steam engines, of his famous air-brake and of his still more famous system of electric lighting.

W. T. Wiley and Robert Bliss are the agents in New York of the English syndicate which has been endeavoring to purchase so many American iron-works.

W. T. Wellman, so long identified with the Otis Company, has become connected with the Illinois Steel Company as consulting-engineer.

Major Bent and E. C. Felton, of the Pennsylvania Steel Company, have gone to Cuba on a short business trip.

Horace See, of New York, and E. V. D'Invilliers, of Philadelphia, are expected to reach New York this week on the City of Paris.

The Harrington & King Perforating Company, of Chicago, have this year largely increased their facilities for manufacturing perforated metals of all descriptions and have enjoyed a much heavier trade in consequence of their ability to handle it. They have had a good foreign demand for their products and recently made a large shipment to Russia.

The representatives of the mysterious English syndicate which has shown such eagerness to possess the Thomas Iron Company's property have not given up all hope. They are still negotiating.

One of the new Anniston coke furnaces owned by the Woodstock Iron Company is now in blast. Matthew Addy & Co. are selling the product.

The Albany Stove Works, at North Albany, were destroyed by fire Saturday night. Loss $30,000.

A very elaborate catalogue of electrical supplies, including line-wire, okonite, kerite and Cobb wire, insulated cables, connections, fittings, brackets, hoods, hangers, glass insulators, switches, fuse-boxes, shades, reflectors, lamps, bells and buttons, has been published by the Electrical Supply Company, of Chicago, whose factories are at Ansonia, Conn.

It is reported that the Croger Iron and Steel Company, at Roanoke, have blown in their second furnace.

The Pennsylvania Steel Company announce an advance of 10 per cent. in wages, the second since the improvement in the trade, to take effect on the 1st inst.

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CURRENT HARDWARE PRICES.

OCTOBER 23, 1889.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

Ammunition.—

Caps, Percussion, ℔ 1000—

Hicks & Goldmark's and Union Metallic Cartridge Co.
F. L. Waterproof, 1-10's.....34@35¢
E. B. Trimmed Edge, 1-10's.. ....46@48¢
E. B. Grnd. Edge, Cent. Fire, 1-10's....46@47¢
Musket Waterproof, 1-10's.....50¢
G. D.....28¢
S. B. Genuine Imported.....45¢
Eley's E. B.....54¢ @ 55¢
Eley's D Waterproof, Central Fire...$1.60

Cartridges.

Rim Fire Cartridges.....50&5&2 %
Rim Fire Military.....15&2 %
Cent. Fire, Pistol and Rifle.....25&5&2 %
Cent. Fire, Military and Sporting 15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges, 22 cal., $1.75.....2 %
Blank Cartridges, 32 cal., $3.50.....2 %
Primed Shells and Bullets.....15&5&2 %
B. B. Caps, Round Ball, $1.75.....2 %
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

Primers—

Berdan Primers, $1.00.....2%
B. L. Caps (for Sturtevant Shells) $1.00, 2%
All other Primers, $1.20.....2%

Shells—

First quality, 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Star, Club, Rival and Climax brands, 20&10&2%
Seibold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax.. 65&2%
I X L, 10 and 12 guage.....40&5&2%
"Special," 16 gauge.....30&10&5&2%
"Special," 10 and 12 gauge.....40&10&2%
Fowler's Pat.....$3.25

Shells Loaded—

Standard. List.....40&10@40&10&10%

Wads—

U. M. C. & W. R. A.—B. E., 11 up..$2.00
U. M. C. & W. R. A.—B. E., 9&10.. 2.30
U. M. C. & W. R. A.—B. E., 7&8... 2.60
U. M. C. & W. R. A.—P. E., 11 up.. 3.10
U. M. C. & W. R. A.—P. E., 9&10.. 4.00
U. M. C. & W. R. A.—P. E., 7&8... 4.90
Eley's B. E., 11 up.....$1.75
Eley's P. E., 11@20..... 2.80

Anvils.—

Eagle Anvils, ℔ 10¢.....20@20&5%
Peter Wright's.....10¢
Armitage's Mouse Hole.....8½¢
Armitage's Mouse Hole, Extra.11½@11½¢
Trenton.....9½@9½¢
Wilkinson's.....9½@10¢
J. & Riley Carr, Pat. Solid.....11@11½¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—

Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%

Apple Parers—

Advance.....℔ doz $4.75
Antrim Combination.....℔ doz 5.50
Baldwin.....℔ doz 5.25
Champion.....℔ doz 7.25
Daisy.....℔ doz 4.00
Eureka, 1888.....each 17.00
Family Bay State.....℔ doz 12.00
Favorite.....℔ doz 5.00
Gem.....℔ doz 5.25
Gold Medal.....℔ doz 4.00
Ideal.....℔ doz 4.00
Improved Bay State.....℔ doz 30.00
Little Star.....℔ doz 4.50
Monarch.....℔ doz 13.50
New Lightning.....℔ doz 5.50
Oriole.....℔ doz 4.00
Penn.....℔ doz 4.00
Perfection.....℔ doz 4.00
Pomona.....℔ doz 4.00
Rocking Table.....℔ doz 6 00
Turntable.....℔ doz 4.50
Victor.....℔ doz 13.50
Waverly.....℔ doz 4.00
White Mountain.....℔ doz 4.50
72.....℔ doz 4.25
76.....℔ doz 5.75
78.....℔ doz. 6.50

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co. } 70%
French, Swift & Co. (F. H. Beecher, Rockford Bit Company
Cook's, Douglass Mfg. Co.....55 %
Cook's, N. H. Copper Co.50&10@50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ℔ set, 32½ quarters, No. 5, $5; No. 30, $3.50.20%
Lewis' Patent Single Twist.....45%
Russell Jennings' Augers and Bits.....25%
Imitation Jennings' Bits.....60@60&5%
Pugh's Black.....20%
Rockford, Jenning's Pattern.....60%
Car Bits.....50&10@60%
L Hommodieu Car Bits.....15&10%
Forstner Pat. Auge Bits.....10%
Cincinnati Bell-Hangers' Bits.....30%

Hollow Augers—

Ives' } 33⅓ @
French, Swift & Co. } 33⅓&10%
Douglass'
Bonney's Adjustable, ℔ doz $48....40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25&25&10%
Cincinnati Adjustable.....30&30&5%
Cincinnati Standard.....25&10%

Expansive Bits—

Clarks' small, $18; large, $26...35@35&5%
Ives' No. 4, ℔ doz $60.....40%
Swan's.....40%
Steer's, No. 1, $26; No. 2, $22.....35%
Stearns' No. 2, $48.....20%

Gimlet Bits—

Common.....℔ gross $2.75@$3.25
Diamond.....℔ doz $1.10.....25&10%
Ree.....25@25&5%
Double Cut, Shepardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co...30&10%
Double Cut, Hartwell's, ℔ gro.....$5.25
Double Cut, Douglass'.....40&10%
Double Cut, Ives'.....60@60&10%

Bit Stock Drills—

Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Williams' or Hoit's, for metal.50&10&10%
Williams' or Hoit's, for wood..40&10%
Cincinnati, for wood.....30&5%
Cincinnati, for metal.....40&10%

Ship Augers and Bits—

L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10@5%

Awl Hafts—

Sewing, Brass Fer. ℔ gr, $3.50.....45&10%
Pat. Sewing, Short.$1.00 ℔ doz,...40&10%
Pat. Sewing, Long.....℔ doz $1.20
Pat. Peg, Plain Top.℔ gr $10.00...45&10%
Pat. Peg, Leather Top.℔ gr $12.00.45&10%

Awls, Brad Sets, &c—

Awls, Sewing, Common ℔ gr $1.70, 35%
Awls, Should. Peg.℔ gr $2.45, 40@40&10%
Awls, Pat. Peg...℔ gr 63¢.... 40@40&10%
Awls, Shouldered Brad..2.70 ℔ gr.....35%
Awls, Handled Brad...$2.50 ℔ gr.....15%
Awls, Handled Scratch.℔ gr, $7.50.35&10%
Awls, Socket Scratch.℔ doz, $1.50.25@30%

Awl and Tool Sets—

Aiken's Sets, Awls and Tools, No. 20, ℔ doz $10.00.....55&10%
Bray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9.....25@25&10%
Miller's Falls Adj. Tool Hdls.. Nos. 1, $12. 2, $18.....25%
Henry's Combination Haft...℔ doz $6.50
Brad Sets, No. 42, $10.50; No. 43, $12.50..70&10&5%
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....30&10%

Axes—

Makers' and Special Brands—

First quality.....℔ doz $6.00@$6.50
Others.....℔ doz $5.50@$5.75

Axle Grease—

Fraser's.....Keg ℔ ℔ 4¢, Pail ℔ ℔ 5¢
Fraser's, in boxes.....℔ gr $0.50
Dixon's Everlasting, in bxs...℔ doz 1℔ $1.20; 2 ℔ $2.00
Dixon's Everlasting....10-℔ pails, ea. 85¢
Lower grades, special brands, ℔ gr $5.50@$7.00

Axles—

No. 1.....4¢@4½¢, No. 2 5½¢@5½¢
Nos. 7 to 14.....55&5%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
National Tubular Self-Oiling: Standard Farm (1 to 5) and Special Farm (A1 to A5):
Less than 10 sets.....33⅓%
Over 10 sets.....33⅓&5%

Bag Holders.—

Sprengle's Pat.....℔ doz $18.....60%

Balances—

Spring Balances.....50%
Common 24-℔.....℔ doz $1.50.....50%
Chatillon's Spring Balances.....50%
Chatillon's Circular Spring Balances.60%

Bells—

Hand—

Light Brass.....70&10 @ 75%
Extra Heavy.....60&10%
White Metal.....60&10&10%
Silver Chime.....33⅓&10%
Globe (Cone's Patent).....25&10&35%

—Door—

Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10&50%
Crank, Taylor's.....25&10%
Crank Brooks'.....50&10&2%
Crank, Cone's.....10%
Crank, Counel's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%
Pull, Western.....25&10%

Cow -

Common Wrought.....60&10%
Western.....20&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Dodge, Genuine Kentucky....70&70&10%
Texas Star.....50&10@50&10&5%
Call.....40@40&5%
Farm Bells.....℔ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Bellows—

Blacksmiths'.....60@60&5%
Molders'.....40@40&10%
Hand Bellows.....40&10@50%

Belting, Rubber—

Common Standard.....70&10%
Standard.....70&70&5%
Extra.....60&5@60&10%
N. Y. B. & P. Co., Carbon.....60&10&5%
N. Y. B. & P. Co., Diamond.....50&10%

Bench Stops—

Morrill's.....℔ doz $9, 50%
Hotchkiss's.....℔ doz $5, 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's.....℔ doz $3.....10%
Cincinnati.....25&10%

Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders—

Extension,
Barber's, ℔ doz $15.00.....40@40&10%
Ives, ℔ doz $20.00.....60&5@60&10%
Diagonal.....℔ doz $24.00, 40%
Angular.....℔ doz $24.00, 40&5%

Blind Adjusters—

Domestic.....℔ doz $3.00, 33⅓%
Excelsior.....℔ doz $10.00....50&10&2%
Washburn's Self-Locking....20@20&10%

Blind Fasteners—

Mackrell's, ℔ doz. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ℔ gr..60&10%
Van Sand's Old Pat., $15.00 ℔ gr..55&10%
Washburn's Old Pattern, ℔ gr.....$9.00
Merriman's.....new list
Austin & Eddy No. 2008, ℔ gr.....$9.00
Security Gravity, ℔ gr.....$9.00

Blind Staples—

Barbed, ½ in. and larger.....℔ ℔ 7½@8¢
Barbed, ¾ in.....℔ ℔ 8½@9¢

Blocks—

Ordinary Tackle, list May 20, 1889...50%
Cleveland Block Co., Mal. Iron. ..'...50%
Moore's Novelty, Mal. Iron.....50%

Bolts—

Door and Shutter—

Cast Iron Barrel, Square, &c..70&70&10%
Cast Iron Shutter Bolts.....70&70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts.....60%
Wrought Barrel.....70&70&10%
Wrought Square.....70&70&10%
Wr't Shutter, all Iron, Stanley's..60&10%
Wr't Shutter, Brass Knob, " ..40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list...55&10%
Wr't Sunk Flush, Stanley's list...50&10%
Wr't B.K.Flush, Com'n " ...55&10%

Carriage, Machine, &c.—

Com. list June 10, '84.....70&10&10&2%
Genuine Eagle, list Oct., '84...75&10&80%
Phila. pattern, list Oct. 7, '84..80&80&10%
R.B.&W., old list.....70%
Machine, according to size...75&10@80%
Bolt Ends, according to size..75&10@80%

Tire—

Common, list Feb. 28, '83.....70%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83..... ...70%
Phila., list Oct. '84.....82½%
Keystone, Philadel., list Oct. '84....80%
Norway, Phila., list Oct. '84 ...75&10%
American Screw Company:
Norway, Phil., list Oct. 16, '84....75&10%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....82½%
Bay State, list Feb. 28, '83.....70%
R.B.&W., Philadel., list Oct. 16, '84...82½%

Stove and Plow—

Stove.....65%
Plow.....60&5%
R. B. & W., Plow.....55%

Borax.....℔ ℔ 9½@10½¢

Boring Machines—

	Without Augers.	Upright.	Angular.	
Douglas		$5.50	$6.75	50%
Snell's, Rice's Pat.	5.50	6.75	...40&10&10	
Jennings	5.50	6.75	...45@45&10	
Other Machines	2.35	2.75		net
Phillips' Patent with Augers	00	7.50		

Bow Pins—

Humason, Beckley & Co.'s.....60&10%
Sargent & Co's....$17 and $18.....60&10%
Peck, Stow & W. Co.. 50&10@50&10&5%

Braces.—

Barber's,
Nos. 10 to 16.....50%
Nos. 30 to 33.....50%
Nos. 40 to 63.....50&10%
Barker's,
Nos. 8, 10 and 12.....75&10@80%
Plated, Nos. 8, 10 and 12....65&10@70%
Osgood's Ratchet.....40&10&50%
Spofford's.....50&5@50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Common Ball, American.....$1.00@$1.10
Bartholemew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Rachet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10 10 in.....$2.25
Buffalo Ball.....$1.10@$1.15
P. S. & W.....50&10%

Brackets—

Shelf plain, Sargent's list, 55&10@55&10&10%
Shelf, fancy, Sargent's list, 60&10@60&10&10%
Reading, plain.....50&10@60&10&5%
Reading, Rosette.....60&10@60&10&10%

Bright Wire Goods.....87½

Broilers—

Henis' Self-Basting. } Inch..... 9 10 9x11
} Per doz...$4.50 5.50 6.50

Buckets—See Well Buckets and Pails.

Bull Rings—

Union Co. Nut.....55%
Sargent's.....66⅔&10@70&5%
Hotchkiss' low list.....30%
Humason, Beckley & Co.'s.....70%
Peck, Stow & W. Co's..50&10@50&10&10%
Ellrich Hdw. Co., White Metal, low list. 50@50&10%

Butcher's Cleavers—

Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P. S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Butts—

Brass—

Wrought Brass.....75@75&10%
Cast Brass, Tiebout's'.....33⅓%
Cast Brass, Corbin's, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—

Fast Joint, Narrow.....50&10&5@60&5%
Fast Joint, Broad.....55&10&5@60&10%
Loose Joint.....
Loose Joint, Japanned.....
Loose Joint, Jap. with Acorns.....
Parliament Butts.....
Mayer's Hinges.....
Loose Pin, Acorns.....
Loose Pin, Acorns, Japanned...
Loose Pin, Acorns, Japanned, Plated Tips..... } 70&10 @75%

Wrought Steel—

Fast Joint, Narrow.....
Fast Joint, Lt. Narrow.....
Fast Joint, Broad.....
Loose Joint, Broad.....
Table Butts, Back Flaps, &c.....
Inside Blind, Regular.....
Inside Blind, Light.....
Loose Pin..... } 70&10 @75%
Bronzed Wrought Butts..... ....50%

Calipers—

See Compasses.

Calks, Toe—

Gautier.....℔ ℔ 5½@6¢
Dewicks (Burke).....℔ ℔ 5½@6¢

Can Openers—

Messenger's Comet.....℔ doz $3.00, 25%
American.....℔ gross $3.00
Duplex.....doz 25¢, 15@20%
Lyman's.....℔ doz $3.75, 20%
No. 4 French.....℔ doz $2.25, 55@60%
No. 5, Iron Handle.....℔ gr $6.00, 45@50%
Eureka.....℔ doz $2.50, 10%
Sardine Scissors.....℔ doz $2.75@3.00
Star.....℔ doz $2.75
Sprague, No. 1, $2.00; 2, $2.25; 3, $2.50. 50&10&10%
World's Best, ℔ gross, No. 1, $12.00 No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ℔ doz $3.00.....35&5%
Domestic, ℔ doz $2.50.....40%
Champion ℔ doz $2.00.....40 %

Cards—
Horse & Curry.....10@10@10@10@10%
Cotton.....10@10@10%
Wool.....10@10@10%

Carpet Stretchers—
Cast Steel, Polished.....₱ doz $2.2?
Cast Iron, Steel Points.....₱ doz 80¢
Socket.....₱ doz $1.75
Bullard's.....25@25@10%

Carpet Sweepers—
Bissell No. 5.....₱ doz $17.00
Bissell No. 7 New Drop Pan.₱ doz $19.00
Bissell, Grand.....₱ doz $36.00
Grand Rapids.....₱ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic.....₱ doz $15.00
Jewel.....₱ doz $17.00
Improved Parlor Queen, Nickeled..₱ doz $27.00
Japanned..₱ doz $24.00
Excelsior.....₱ doz $22.00
Garland.....₱ doz $18.00
arlor Queen.....₱ doz $24.00
Housewife's Delight.....₱ doz $15.00
Queen.....₱ doz $16.00
Queen, with band..₱ doz $18.00
King.....₱ doz $30.00
Weed, Improved.....₱ doz $18.00
Hub.....₱ doz $16.00
Cog-Wheel.....₱ doz $16.00
Conqueror.....₱ doz $22.00
Easy.....₱ doz $22.00
Monarch.....₱ doz $22.00
Goshen.....₱ doz $21.00
Advance.....₱ doz $18.00
Ladies' Friend, No. 1, ₱ doz, $15.00; No. 2.....₱ doz $16.00
American.....₱ doz $15.00
Grand Republic.....₱ doz $35.00

Cartridges—
See Ammunition.

Casters—
Bed.....} Brass....55@55&15%
Plate.....} Others...60@60@10%
Shallow Socket.....
Deep Socket.....40@10%
Yale Casters, list May, 1884..30@10@40%
Yale, Gem.....60@60&5%
Martin's Patent (Phœnix).....45&10@50%
Payson's Anti-friction.....60@60@10%
Giant Truck Casters.....30%
Stationary Truck Casters.....50@10%
Socket Truck Casters.....50%

Cattle Leaders—
Humason, Beckley & Co.'s.....70%
Sargent's.....60%@10%
Hotchkiss.....30%
Peck, Stow & W. Co.....50&10%

Chain—
Trace, 6½-10-2, exact, ₱ pair, $1.03.....50&10@50&10&5%
Trace, 6½-10-3, exact, ₱ pair 92¢.....50&10@50&10&5%
Trace, 7-10-2, exact, ₱ pair $1.11.....50&10@50&10&5%
NOTE.—Traces, "Regular" sizes, 3¢ net ₱ pair less than exact.
Log, Fifth, Stretcher, and other fancy Chains, List Nov. 1, 1884 50&10@50&10&5%
American Coil, in cask lots, 3-16 ¼ 5-16 ⅝ 7-16 ½ ⅝ ¾ $8.00 5.50 4.00 4.00 3.75 3.60 3.50 3.40
Less than cask lots, add ½¢@¾¢ ₱ ₱.
German Coil, list of June 20, 1887 50&10&5@60%
German Halter Chain, list of June 20, 1887.....50&10&5@60%
Covert Halter.....60&2%
Covert Traces.....35@2%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₱ ₱ 5½@5½¢
Jack Chain, Iron.....75@75&5%
Jack Chain, Brass.....70@70&5%

Chalk—
White.....₱ gr 50¢
Red.....₱ gr 70¢
Blue.....₱ gr 85¢
See also Crayons.

Chalk Lines—
See Lines.

Chisels—
Socket Framing and Firmer.
P. S. & W.....} 75&10 @ 75& 10&5%
New Haven.....}
Witherby.....}
Mix.....}
Ohio Tool Co.....}
Douglass.....75@75&5%
Buck Bros.....30%
Merrill.....60&10@60&10&5%
L. & I. J. White.....50@30&5%
Tanged and Miscellaneous.
Tanged Firmers.....40&10@50%
Butchers'.....$4.75@$5.00
Spear & Jackson's.....$5 to £
Buck Bros.....30%
Cold Chisels, ₱ ₱.....16@19¢

Chucks—
Beach Pat.....each, $8.00.....20%
Morse's Adjustable,each, $7.00, 20@20&5%
Danbury.....each, $6.00, 30@30&5%
Syracuse, Balz Pat.....25%
Skinner's Pat. Drill Chucks.....30%
Skinner's Independent Lathe Chucks.40%
Skinner's Pat. Comb. Chuck.....40%

Clamps—
R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Gray's.....20%
Adjustable, Lambert's.....20%
Adjustable, Snow's.....40&5%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....20&10%
Stearn's Adjustable Cabinet and Corner.....20&10%
Cabinet, Sargent's.....60%&10%
Carriage Makers', Sargent's.....70&10%
Eberhard Mfg. Co.....40&5@40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises.
Carpenters', Cincinnati.....1.5%

Clips—
Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16 65&5%
Superior Axle Clips.....66%&5&70%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₱ ₱, 5½¢
Steel Felloe Clips.....₱ ₱, 5¢
Baker Axle Clips.....25%

Cockeyes.....50%

Cocks, Brass.
Hardware list.....50&2%

Coffee Mills—
Box and Side, List Jan. 1, 1888.....60&2%
American, Enterprise Mfg Co.20&10@30%
The Swift, Lane Bros.....20&10%

Compasses Dividers, &c—
Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's Spring Calipers and Dividers 25&10&10%
Lock Calipers and Dividers.....25&10%
Combination Dividers.....25&10%

Coopers' Tools—
Bradley's.....20%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Shaves, Cincinnati Tool Co.....20%

Corkscrews—
Humason & Beckley Mfg. Co..40@40&10%
Clough's Pat.....33⅓@33⅓&5%
Howe Bros & Hulbert.....35%

Corn Knives and Cutters—
Bradley's.....10%
Wadsworth's.....25%

Cradles—
Grain.....50&5&2 @ 50&10&2%

Crayons.
White Crayons, ₱ gr 12¢@12½¢.....10%
D. M. Stewart Mfg. Co., Metal Workers, ₱ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₱ gr, $2.50.....25%
See also Chalk.

Crow Bars—
Cast Steel.....₱ ₱ 4¢
Iron, Steel Points.....₱ ₱ 3½¢

Curry Combs—
Fitch's.....50&10@50&10&10%
Rubber per doz $10.00.....20%
Perfect.....50%

Curtain Pins—
Silvered Glass.....net
White Enamel.....net

Cutlery—
Beaver Falls & Booth's.....33⅓
Wostenholme.....$7.75 to £

Dampers, &c—
Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Dividers—
See Compasses.

Dog Collars—
Embossed, Gilt, Pope & Steven's list 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%

Door Springs—
Torrey's Rod, regular size....₱ doz $1.30
Gray's, ₱ gr., $20.00.....20%
Bee Rod ₱ gr., $20.00.....20%
Warner's No. 1, ₱ doz, $2.50; No. 2, $3.30.....40&10@50%
Gem (Coil), list April 19, 1886.....10%
Star (Coil), list April 19, 1886.....20%
Victor (Coil).....60@60&10%
Champion (Coil).....60&10@60&10&10%
Philadelphia, 5 in., $5.00; 8 in., $7.75.. %
Cowell's....No. 1, ₱ doz, $18.00; No. 2, $15.00.....50%
Rubber, complete, ₱ doz, $4.50....55&10%
Hercules.....50%
Shaw Door Check and Spring.25@30@35%

Drawing Knives—
Witherby.....} 75&10 @ 75&10 &5%
P. S. & W.....}
Mix.....}
New Haven.....}
Merrill.....60&10@60&10&5%
Douglas.....75@75&5%
Watrous.....15&10@25%
L. & I. J. White.....20&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@25&5%

Drills and Drill Stocks—
Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50.20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's.....each $2.50, 25&10&40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll's.....25%
Ratchet, Parker's.....20@20&5%
Ratchet, Whitney's.....20&10%
Ratchet, Weston's.....20@25%
Ratchet, Moore's Triple Action...25@30%
Ratchet, Curtis & Curtis.....30 %
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools...$1.75@$1.85
Twist Drills—
Morse.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%
Cleveland.....50&10&5%
Williams.....50&10&10%
New Process.....50&10&5%

Drill Bits.—See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans—
Smallsizes.....₱ ₱ 6¾¢
Large sizes.....₱ ₱ 6¼¢

Egg Beaters.
Dover.....₱ doz $1.50
National, ₱ doz $4.50.....35⅓%
Family (T. & S. Mfg. Co.), ₱ gro $17.00@$18.00
Duplex (Standard Co.).....₱ gro $12.00
Rival (Standard Co.).....₱ gro $9.00
Duplex Extra Heavy (Standard Co.)...₱ gro $27.00
Triumph (T. & S. Mfg. Co.), ₱ gro $10.50@$11.50
Advance, No. 1.....₱ gro $10.50
Advance, No. 2.....₱ gro $10.00
Bryant's.....₱ gro $14.00
Ayres' Spiral.....₱ gro $5.00
Double (H. & R. Mfg. Co).....₱ gro $16.20
Easy (H. & R. Mfg. Co.).....₱ gro $14.00
Triple (H. & R. Mfg. Co.).....₱ gro $16.20
Spiral (H. & R. Mfg. Co.).....₱ gro $4.50
Paine, Diehl & Co.'s.....₱ gro $24.00

Egg Poachers—
Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $9.00.....25%

Electric Bell Sets.—
Wollensak's.....20%
Bigelow & Dowse.....20%

Emery—

	No. 4 to 46 gr.	No. 54 to 150 gr.	Flour, CF FF.
Kegs, ₱ ₱	4½¢	5 ¢	2½¢
½ kegs, ₱ ₱	4¾¢	5½¢	2¾¢
¼ kegs, ₱ ₱	5 ¢	5½¢	3 ¢
10-₱ cans, in case	6 ¢	6½¢	5 ¢
10-₱ cans, less than 10	10 ¢	10 ¢	7½¢

Enameled and Tinned Ware—
See Hollow-Ware.

Escutcheon Pins—
Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass.....60@60&5%

Escutcheons.
Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Faucets.—
Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&2%
B. & L. B. Co. West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers' Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring Enterprise, ₱ doz $50.00.....20&10%
Lane's, ₱ 3oz $36.00.....27&10%
Victor, ₱ doz $36.00.....25&10%

Felloe Plates.....₱ ₱ 6@6¼¢

Fifth Wheels.—
Derby and Cincinnati.....50&5%
Brewster.....55&5%

Files—
Domestic—
Nicholson Files, Rasps, &c.....60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75% (extra prices on certain sizes)
Other makers, best brands 60&10@60&10&10%
Fair brands.....60&10&10@70%
Second quality.....70&10@75&10%
Nicholson's Horse Rasps....60&10@60& 10&5%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chelsea Horse Rasps, Hand Cut...50&10%
Imported—
J. & Riley Carr....List, April 1, 1883, 15%
J. & Riley Carr Horse Rasps.....10%
Moss & Gamble.....List, April 1, 1883, 15%
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%
Turton's.....Turton's list, 20@25%
Greaves' Horse Rasps..American list, 60%

Fluting Machines—
Knox, 4½-inch Rolls.....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3½-inch Roll, $2.15.....35%
Eagle, 5½-inch Roll, $2.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each.....35%
Crown Jewel, 6 in.....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in. $4.50 each.....35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal ₱ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; 2, $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 85 ₱ doz $15.30.....40%
Shepard Hand Fluter, No. 110 ₱ doz $11.00.....40%
Shepard Hand Fluter, No. 95 ₱ doz $8.00.....40%
Clark's Hand Fluter, ₱ doz $15.00.....35%
Combined Fluter and Sad Iron, ₱ doz $15.00.....30%
Buffalo.....₱ doz $10.00.....10%

Fluting Scissors.....45%

Fodder Squeezers—
Blair's.....₱ doz $2.00
Blair's "Climax".....₱ doz $1.25

Forks—
Hay, Manure, &c., Asso. List.....70%
Hay, Manure, &c., Phila. List 60@60&5%
Plated, see Spoons.

Freezers, Ice Cream—
Buffalo Champion.....65&65&5%
Shepard's Lightning.....65 @ 65&5%
White Mountain.....50&20&5%
New Arctic.....50&40&5%
American.....60%
Gem.....65%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60%
Peerless and Giant.....60&10
Zero and Pet.....65&10
Boss.....65&10&10
Keystone, each, $1.50.....25%

Fruit and Jelly Presses—
Enterprise Mfg. Co.....20&10&30%
Henis.....₱ doz $2.50
Shepard's Queen City.....40%

Fry Pans—
High List.....75&10@75&10&5%

No.	0	1	2	3	4
₱ doz.	$3.75	$4.70	$5.30	$5.95	$6.55
No.	5	6	7	8	
₱ doz.	$7.50	$8.75	$10.00	$11.25	

Low List.....70 @ 70&10%

No.	0	1	2	3	4
₱ doz.	$3.00	$3.75	$4.25	$4.75	$5.25
No.	5	6	7	8	
₱ doz.	$6.00	$7.00	$8.00	$9.00	

Acme Fry Pans.....60&10%

List. No.	0	1	2	3	6
₱ doz.	$3.00	$3.75	$4.25	$4.75	
List. No.	4	5	6	7	
₱ doz.	$5.25	$6.00	$7.00	$8.00	

Fuse—
₱ 1000 ft
Common Hemp Fuse, for dry ground..$2.70
Common Cotton Fuse, for dry ground 2.85
Single Taped Fuse, for wet ground.. 4.25
Double Taped Fuse, for very wet gr. 5.40
Triple Taped Fuse, for very wet gr.. 6.50
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gauges—
Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch, 25&10%
Wire, low list.....10&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....50@50&5%
Wire, Brown & Sharpe's.....10@20%

Gimlets—
Nail and Spike.....50&10&5%
"Eureka" Gimlets.....40&10%
"Diamond" Gimlets.....₱ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%
"Bee," ₱ gr $12.....25@25&5%

Glue—
Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
Le Page & Co.'s Improved Process 25@25&5%

Glue Pots—
Tinned.....40%
Enameled.....40&5%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy".....50%

Grindstones—
Small, at factory.....₱ ton $7.50@9.00

Grindstone Fixtures—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%

Hack Saws.—
See Saws.

Halters—
Covert's, Rope, ½-in. Jute.....50&2%
Covert's, Rope, ½-in. Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse and Cattle Ties, 60&10&2%

Hammers—
Handled Hammers—
Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co.....} List Jan. 15, '87
Humason & Beckley.....} 50@50&10%
Atha Tool Co.....}
Fayette R. Plumb.....40&10@50%
C. Hammond & Son.....40&10@50%
Verree.....5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles.....20@25
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%
Heavy Hammers and Sledges—
3 ₱ and under.....₱ ₱ 40¢ } 70@70&10%
3 to 5 ₱.....₱ ₱ 36¢ }
Over 5 ₱.....₱ ₱ 30¢ }
Wilkinson's Smiths.....10½¢@11¢ ₱ ₱

Handcuffs and Leg Irons—
R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's.....25%
Daley's Improved Handcuffs: 2 Hands, Polished, ₱ doz $48.00; Nickeled, $57.00; 3 Hands, Polished, ₱ doz $72.00; Nickeled, $84.00.....25%

Handles—
Iron, Wrought or Cast—
Door or Thumb.

Nos.	0	1	2	3	4
Per doz.	$0.90	1.00	1.18	1.35	1.50

60&10&10%
Roggin's Latches.....₱ doz 30¢@35¢
Bronze Iron Drop Latches..₱ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88.....net
Barn Door, ₱ doz $1.40.....10&10%
Chest and Lifting.....70%
Handles, Wood—
Saw and Plane.....40&10@40&10&5%
Hammer, Hatchet, Axe, Sledge, &c...40%
Brad Awl.....₱ gr $2.00
Hickory Firmer Chisel, ass'd..₱ gr 4.50 } 40%
Hickory Firmer Chisel, large. ₱ gr 5.00 }
Apple Firmer Chisel, ass'd...₱ gr 5.00 } 40 &10
Apple Firmer Chisel, large...₱ gr 6.00 }
Socket Firmer Chisel, ass'd..₱ gr 3.00 } 50%
Socket Framing Chisel, ass'd. ₱ gr 5.00 }
J. S. Smith & Co.'s Pat File.....50%
File, assorted.....₱ gr 2.75 } 40@
Auger, assorted.....₱ gr 5.00 } 40&10%
Auger, large.....₱ gr 7.00 }
Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass'.....₱ set $1.25
Pat. Auger, Swan's.....₱ set $1.00
Hoe, Rake, Shovel, &c.....50&10%

Cross-Cut Saw Handles—
Atkins' No. 1 Loop, ₱ pair, 28¢; No. 3, 18¢; No. 6, 16¢; No. 2 and No. 4 Reversible, 18¢.
Boynton's Loop Saw Handles, 50¢ . . . 60%
Champion . . . 15¢

Hangers—
Barn Door, old patterns . . . 60&10&10@70%
Barn Door, New England . . . 60&10&10@70%
Samson Steel Anti-Friction . . . 55%
Orleans Steel . . . 55%
Hamilton Wrought Wood Track . . . 55%
U. S. Wood Track . . . 65%
Champion . . . 60&10%
Rider and Wooster, Medina Mfg. Co.'s list . . . 70%
Climax Anti-Friction . . . 60%
Climax Anti-Friction for Wood Track . . . 55%
Zenith for Wood Track . . . 55%
ed's Steel Arm . . . 50%
allenge, Barn Door . . . 50%
Sterling's Imp'ved (Anti-Friction) . . . 65&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00 . . . 50&2%
Cheritree . . . 50&10%
Kidder's . . . 50&10@60%
The Boss . . . 60&10%
Best Anti-Friction . . . 60&10%
Duplex (Wood Track) . . . 60&10&5%
Terry's Pat., ₱ doz pr. 4 in, $10.00; 5 in, $12.00 . . . 50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal . . 50&10%
Cronk's Pat., No. 4, $12.00; No. 5, $14.40; No. 6, $18.00 . . . 50&15@60%
Wood Track Iron Clad, ₱ ft. 10¢ . . . 50 &15@60%
Carrier Steel Anti-Friction . . . 50@50&5%
Architect, ₱ set $6.00 . . . 20%
Eclipse . . . 20&10%
Felix, ₱ set $4.50 . . . 20%
Richards' . . . 30@30&10%
Lane's Steel Anti-Friction . . . 50%
Ball Bearing Door Hanger . . 20&10@25&10%
Warner's Pat . . . 20@20&10%
Stearns' Anti-Friction . . . 20@20&10%
Stearns' Challenge . . . 25&10@25&10&10%
Faultless . . . 40@40&5%
American, ₱ set $6.00 . . . 20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢ . . . 40%
Paragon, Nos. 1, 2 and 3 . . . 40&10%
Cincinnati . . . 25&10%
Paragon, Nos. 5, 5½, 7 and 8 . . . 20&10%
Crescent . . . 60@60&10%
Nickel, Cast Iron . . . 50%
Nickel, Malleable Iron and Steel . . . 40%
Scranton Anti-Friction Single Strap . 33⅓%
Scranton Anti-Friction Double Strap . 40%
Universal Anti-Friction . . . 40%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00 . . . 45%
Star . . . 40&10@40&10&5%
May . . . 50&5@50&10%
Barry, $6.00 . . . 40&10%

Harness Snaps—
See Snaps.

Hatchets—
List Jan. 1, 1886.
Isaiah Blood . . . 35@40%
Hunt's Shingling, Lath and Claw . . 40&5%
Hunt's Broad . . . 40%
Buffalo Hammer Co . . . 40&10&50%
Hurd's . . . 40&10@50%
Fayette R. Plumb . . . 40&10@50%
Wm. Mann, Jr., & Co . . . 50@50&5%
Underhill Edge Tool Co . . . 40&50@40&10%
Underhill's, Haines and Bright . . . 33⅓%
C. Hammond & Son . . . 40&10@50%
Simmons' . . . 40&10@50%
Peck's . . . 40&10@40&10&5%
Kelly's . . . 50@50&5%
Sargent & Co . . . 50%
Ten Eyck Edge Tool Co . 40&10@40&10&5%
Collins . . . 10%
Schulte, Lohoff & Co . . . 50@50&5%

Hay and Straw Knives—
Lightning . . Mfrs'. price ₱ doz $18.00, 25% But jobbers cut this price freely.
Gem . . . ₱ doz $10
Wadsworth's . . . 40&7½@40&10%
Carter's Needle . . . ₱ doz $11.50@$12.00
Heath's . . . ₱ doz $13.50@14.00
Auburn Hay, Com. and Spear Point . . 50%
Auburn, Straw . . . 40%
Nolin's Hay . . . ₱ doz $10.00

Hinges—
Wrought Iron Hinges
Strap and T . . . 75&5@75&10%
Screw Hook and Strap . . . 6 to 12 in., ₱ ℔ . . . 4 ¢; 14 to 20 in., ₱ ℔ . . . 3½¢; 22 to 36 in., ₱ ℔ . . . 3 ¢
Heavy Welded Hook . . . 6 to 12 in., ₱ ℔ . . . 4 ¢; 14 to 20 in., ₱ ℔ . . . 3½¢; 22 to 36 in., ₱ ℔ . . . 3 ¢
Screw Hook and Eye . . . ⅛ in., ₱ doz $1.50; ⅜ in., ₱ doz $2.45; ¾ in., ₱ doz $3.80 . . . 10%
Rolled Blind Hinges, Nos. 32 and 34 . . . 50&10%
Rolled Blind Hinges, Nos. 232 and 234 . . . 55&10%
Rolled Plate . . . 70&10%
Rolled Raised . . . 70&10%
Plate Hinges "Providence" . . . 8, 10 & 12 in., ₱ ℔ . . . 5¢; over 12 in., ₱ ℔ . . . 4¢
Spring Hinges—
Geer's Spring and Blank Butts . . . 40%
Union Spring Hinge Co.'s list, March, 1886 . . . 20%
Acme . . . 30%
U. S . . . 25&10%
Empire and Crown . . . 20%
Hero and Monarch . . . 55%
American, Gem, and Star . . . 20%
Oxford . . . 20%
Barker's Double Acting . . . 20&10%
Union Mfg. Co . . . 25%
Bonner's . . . 30%
Buckman's . . . 15&20%
Chicago . . . 30%
Wiles' . . . 10%
Devore's . . . 40%
Rex . . . 40%
Royal . . . 60%
Reliable . . . 60%
Champion . . . 60%
Gate Hinges—
Western . . . ₱ doz $4.40, 60%
N. E . . . ₱ doz $7.00, 55%
N. E. Reversible . . . ₱ doz $5.20, 55&10%
Clark's, Nos. 1, 2, 3 . . . 60&10&5%
N. Y. State . . . ₱ doz $5.00, 55&10%
Automatic . . . ₱ doz $13.50, 50%
Common Sense . . . ₱ doz pair $4.50, 50%
Seymour's . . . 45&10%
Shepard's . . . 60&10&5%
Reed's Latch and Hinges. ₱ doz $12.00, 50%
Blind Hinges—
Parker . . . 75&2%
Palmer . . . 50&5&10%
Seymour . . . 70&2%
Nicholson . . . 45&10%
Huffer . . . 50%
Clark's, Nos. 1, 3, 5, 40 and 50 . . . 75&10&5@80%
Clark's Mortise Gravity . . . 50%
Sargent's, Nos. 1, 3, 5, 11, 13 . . . 75&10@55&10&5%
Sargent's, No. 12 . . . 77&10&10%
Reading's Gravity . . . 75&10@75&10&5%
Shepard's
Noiseless . . . 75&10&5%
Niagara . . . 80&2½%
Buffalo . . . 80&5%
Clark's Genuine Pat . . . 80&5%
O. S., Lull & Porter . . . 75&10@80%
Acme, Lull & Porter . . . 75&5%
Queen City Reversible . . . 75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3 . . . 75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $10.50; No. 3, for Brick, $13.50 . . . 25&2%

Hoes—
Handled—
Garden, Mortar, &c . . . 70%
Planter's, Cotton, &c . . . 70%
Warren Hoe . . . 60%
Magic . . . ₱ doz $4.00
Eye—
D. & H. Scovil . . . 20%
Lane's Crescent Planters Pattern . . 45&5%
Lane's Razor Blade, Scovil Pattern . . 30%
Maynard, S. & O. Pat . . . 45&5%
Sandusky Tool Co., S. & O. Pat . . 60&5@60&10%
Hubbard & Co., S. & O. Pat . . 60&5@60&10%
Chattanooga Tool Co., S. & O. Pat . . 60& 5@60&10%
Grub . . . 60@60&10%

Hog Rings and Ringers—
Hill's Improved Ringers . . . ₱ doz $4.25
Hill's Old Style Ringers . . . ₱ doz $2.75
Hill's Tongs . . . ₱ doz $4.50
Hill's Rings . . . ₱ doz bxs $2.15@2.25
Perfect Rings . . . ₱ doz bxs $1.60@1.70
Perfect Ringers . . . ₱ doz $2.15@$2.25
Blair's Hog Ringers . . . ₱ doz $2.25@2.50
Blair's Hog Rings . . . ₱ doz 90¢@$1.00
Champion Ringers . . . ₱ doz $2.00
Champion Rings, Double . . . ₱ doz $2.25
Brown's Ringers . . . ₱ doz $2.00
Brown's Rings . . . ₱ doz $1.25@1.30

Hoisting Apparatus—
Moore's Hand Hoist, with Lock Brake . . . 20%
Moore's Differential Pulley Block . . . 40%
Energy Mfg. Co's . . . 25%

Holders, File and Tool—
Balz Pat . . . ₱ doz $4.00; 25%
Nicholson File Holders . . . 20%

Hollow-Ware—
Iron—
Stove Hollow-Ware—
Ground . . . 60@60&5%
Unground . . . 60&10@60&10&10%
Boilers and Saucepans . . . 40&5%
Tinned Boilers and Saucepans . . . 40%
Gray Enameled-Ware—
Stove . . . 45@50%
Maslin Kettles . . . 60&10@60&10&10%
Boilers and Saucepans . . . 40&5%
Agate and Granite Ware, list Jan. 1, 1889 . . . 33⅓&10%
Rustless Hollow-Ware . . . 50@50&5%
Galvanized Tea-Kettles—

Inch	6	7	8	9
Each	55¢	60¢	65¢	75¢

Silver Plated—
4 mo. or 5 % cash in 30 days.
Reed & Barton . . . 40&5%
Meriden Britannia Co . . . 40&5%
Simpson, Hall, Miller & Co . . . 40&5%
Rogers & Brother . . . 40&5%
Hartford Silver Plate Co . . . 40&5&5%
William Rogers Mfg. Co . . . 40&5&5%

Hooks—
Cast Iron—
Bird Cage, Sargent's list . . . 60&10&10%
Bird Cage, Reading . . . 60&10&10%
Clothes Line, Sargent's list . . . 60&10&10%
Clothes Line, Reading list . . . 60&10@60&10&10%
Ceiling, Sargent's list . . . 55&10&10%
Harness, Reading list . . . 55&10@55&10&10%
Coat and Hat, Sargent's list . . . 55&10@60&10%
Coat and Hat, Reading . . . 50&10@50&10&10%
Wrought Iron—
Cotton . . . ₱ doz $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks) . . . 30%
Tassel and Picture (T. & S. Mfg. Co.) . . . 50%
Wrought Staples, Hooks, &c. See Wrought Goods.
Wire—
Wire Coat and Hat, Gem, list April, 1886 . . . 50%
Wire Coat and Hat, Miles', list April, 1886 . . . 50%
Indestructible Coat and Hat . . . 45%
Wire Coat and Hat, Standard . . . 45%
Belt . . . 80@80&10%
Miscellaneous.
Grass. No. 2, $2.00: No. 3, $2.25; No. 4, $2.50
Nolin's Grass . . . ₱ doz $2.25
Bush . . . 55@60%
Whiffletree—Patent . . . 55%
Hooks and Eyes—Malleable Iron . . . 70@70&10%
Hooks and Eyes—Brass . . . 60@10&10%
Fish Hooks, American . . . 50%
Bench Hooks . . . See Bench Stops.

Horse Nails—

Nos.	6	7	8	9	10
Ausable	28¢	26¢	25¢	24¢	23¢.

25&10@25&10&10%
Clinton, Fin . . . 10½ @ 11¢, net
Essex . . . 28¢ 26¢ 25¢ 24¢ 23¢. 25&10@25&10&10%
Lyra . . . 25¢ 23¢ 22¢ 21¢ 20¢. 40&10&5@50%
Snowden . . . 25¢ 23¢ 22¢ 21¢ 20¢. 40&10&5@50%
Putnam . . . 23¢ 21¢ 20¢ 19¢ 18¢. 1000 ℔ in year 15%
Vulcan . . . 23¢ 21¢ 20¢ 19¢ 18¢. 12½&5%
Northwest'n . 25¢ 23¢ 22¢ 21¢ 20¢. 10&10&5&5%
Globe . . . 23¢ 21¢ 20¢ 19¢ 18¢. 20&2½%
Boston . . . 23¢ 21¢ 20¢ 19¢ 18¢. 20&2½%
A. C . . . 25¢ 23¢ 22¢ 21¢ 20¢. 25&10@33⅓&5%
C. B.-K . . . 25¢ 23¢ 22¢ 21¢ 20¢. 25&10@33⅓&5%
Champlain . 28¢ 6¢ 25¢ 24¢ 23¢. 25&10&10%
New Haven . . 28¢ 26¢ 25¢ 24¢ 23¢. 25&10@25&10&10%
Saranac . . . 23¢ 21¢ 20¢ 19¢ 18¢ . . . 30&10%
Champion . . . 25¢ 23¢ 22¢ 21¢ 20¢. 10&10&10%
Capewell . . . 28¢ 26¢ 25¢ 24¢ 23¢. 35&5@35&10%
Star . . . 23¢ 21¢ 20¢ 19¢ 18¢. 10&10@10&12½%
Anchor . . . 23¢ 21¢ 20¢ 19¢ 18¢ . . . 35%
Western . . . 23¢ 21¢ 20¢ 19¢ 18¢ . . . 40&10%
Empire Bronzed . . . 14 ₱ ℔.

Horse Shoes—See Shoes Horse.

Hose, Rubber—
Competition . . . 75&10@75&10&5%
Standard . . . 70&70&10%
Extra . . . 60@60&10%
N. Y. B. & P. Co., Para . . . 30&10%
N. Y. B. & P. Co., Extra . . . 50%
N. Y. B. & P. Co., Dundee . . . 60&10&5%

Huskers—
Blair's Adjustable . . . ₱ gr $8.00
Blair's Adjustable Clipper . . . ₱ gr 7.00
Hubbard's Solid Steel . . . ₱ gr 4.50

Indurated Fiber-Ware—25%.
Spittoons, No. 2, ₱ doz . . . $9.00
Basins, Ringed, ₱ doz., No. 1, $4.80; No. 2, $4.20; No. 3 . . . $3.60
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₱ nest . . . $7.50
Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₱ nest . . . $3.70
Butter Bowls 15, 17 and 19-inch (3 pieces), ₱ nest . . . $2.25
Liquid Measures, pt., qt., 2 qt. and funnel (4 pieces) ₱ set . . . $4.00
Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), ₱ set . . . $3 00
See also *Pails.*

Jack Screws—See Screws.

Kettles—

	Spun.	Stamped.
Brass, 7 to 17 in., ₱ ℔	24¢	21 ¢
Brass larger than 17 in., ₱ ℔	26¢	23½¢

Enameled and Tea Kettles. See *Hollow-Ware.*

Keys—
Lock Asso'n list Dec. 30, 1886 . . . 50&10@60&5%
Eagle, Cabinet, &c . . . 33⅓&2%
Hotchkiss' Brass Blanks . . . 40%
Hotchkiss, Copper and Tinned . . . 40%
Hotchkiss' Pad. and Cab . . . 35%
Ratchet Bed Keys . . . ₱ doz $4.00, 15%
Wollensak Tinned . . . 50&10%

Knife Sharpeners—
Parkin's.
Applewood Handles . . . ₱ doz $6.00, 40%
Rosewood or Cocobolo . ₱ doz $9.00, 40%

Knives—
Wilson's Butcher Knives . . . 25@30%
Ames' Butcher Knives . . . 25%
Foster Bros.' Butcher, &c . . . 40%
Nichols' Butcher Knives . . . 40&10%
Ames' Shoe Knives . . . 20@25%
Ames' Bread Knives . ₱ doz $1.50, 15@20%
Moran's Shoe and Bread . . . 20%
Hay and Straw . . . See Hay Knives.
Table and Pocket . . . See Cutlery.
Corn, Auburn Mfg. Co. Western Pat., $2.00
Corn, Auburn Mfg. Co. Crescent . . . $3.50

Knobs—
Door Mineral . . . 65@68%
Door Por. Jap'd . . . 75@78%
Door Por. Nickel . . . $2.00@2.25
Door Por. Plated, Nickel . . . $2.00@2.25
Drawer, Porcelain . . . 60&10@60&10&10%
Hemacite Door Knobs . . . 40&10@50%
Yale & Towne Wood, list Dec., 1885 . . 40%
Furniture Plain . . . 75¢ gro inch, 10%
Furniture, Wood Screws . . . 25&10%
Base, Rubber Tip . . . 70&10&5%
Picture, Judd's . . . 50&10&10@70%
Picture, Sargent's . . . 70&10%
Picture, Hemacite . . . 35&5%
Shutter, Porcelain . . . 65&10%
Carriage, Jap . . . ₱ gro 80¢, 60&10%

Ladles.—
Melting, Sargent's . . . 55&10%
Melting, Reading . . . 35&10%
Melting, Monroe's Pat . . ₱ doz $4.00, 40%
Melting, P. S. & W . . . 35&10@40%
Melting, Warner's . . . 30%

Lanterns—
Tubular—
Plain with Guards, ₱ doz . . . $4.00@4.25
Lift Wire, with Guards . . . $4.50@4.75
Square Plain, with Guards . . . $4.00@4.25
Sq. Lift Wire, with Guards . . . $4.25@4.50
Without Guards, 25¢ ₱ doz less.
Miscellaneous.
Police, Small, $6.00; Medium, $7.25; Large, $9.75 . . . 20@25%

Lawn Mowers—
Standard List . . . 50&10%
Quaker City . . . 60&10%
Enterprise . . . 60&10%

Lemon Squeezers—
Porcelain Lined, No. 1 . . . ₱ doz $6.00, 25&30%
Wood, No. 2 . . . ₱ doz $3.00, 35%
Wood, Common . . . ₱ doz $1.70@1.75
Dunlap's Improved . . . ₱ doz $3.75, 20%
Sammis . . . No. 1, $5.00; No. 2, $9; 12, $18 ₱ doz . . . 25&10%
Jennings' Star . . . ₱ doz $2.50
The Boss . . . ₱ doz $2.50
Dean's . . . Nos. 1, ₱ doz $6.50; 2, $3.35; 3, $1.90
Little Giant . . . 50@50&5%
King . . . 40&5%

Lines—
Cotton and Linen Fish, Draper's . . . 50%
Draper's Chalk . . . 60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25 . . . 25%
Cotton Chalk . . . 55%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; No. 5 . . . 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₱ gro . . . 25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50 . . . 45%
Mason's Colored Cotton . . . 45%
Wire Clothes . . .

Nos.	18	19	20
	$3.85	$3.25	$2.75

Ventilator Cord, Samson Braided, White or Drab Cotton . . ₱ doz $7.50, 20%

Locks, &c.—
Door Locks, Latches, &c.
R. & E. Mfg. Co., list Mar. 20, 1889 . . . 60&10@60 &10&10%
Mallory, Wheeler & Co., list July, '88 . . .
Sargent & Co., list Aug. 1, '88 . . .
Reading Hardware Co., list Feb. 2, '88 . . .
Note.—Lower net prices often made.
Perkins' Burglar Proof . . . 60&25%
Plate . . . 33⅓&2%
F. Many's "Extension Cylinder" $10.50 ₱ doz.
Barnes Mfg. Co . . . 40@40&10%
Yale . . . net prices
Deitz Flat Key . . . ₱
L. & C. Round Key Latches . . . 50&10%
L. & C. Flat Key Latches . . . 33⅓&10%
Romer's Night Latches . . . 15%
Shepardson or U. S . . . 35%
Felter or American . . . 40&10%
Seed's N. Y. Hasp Lock . . . 25%
Cabinet—
Eagle, Gaylord Parker and Corbin . . . List March, '84, Jan. 1, '85 . . . 33⅓&2%
Deitz, Nos. 36 to 39 . . . ₱ . . . 40%
Deitz, Nos. 51 to 63 . . . 40&10%
Deitz, Nos. 86 to 96 . . . 30%
Stoddard Lock Co . . . 30&33⅓%
"Champion" Night Latches . . . 40%
Barnes Mfg. Co . . . 40@40&10%
Eagle and Corbin Trunk . . . 25&2%
"Champion" Cab. and Combin . . . 33⅓%
Yale . . . net prices
Romer's . . . 25%
Padlocks—
List Dec. 23, '84 . . . 75@75&10%
Yale Lock Mfg. Co.'s . . . net prices
Eagle . . . 25&2%
Eureka, Eagle Lock Co . . . 40&2%
Romer's, Nos. 0 to 91 . . . 30%
Romer's Scandinavian, &c., Nos. 100 to 505 . . . 15%
A. E. Deitz . . . 40%
Champon Padlocks . . . 40%
Hotchkiss . . . 30%
Star . . . 45%
Horseshoe . . . ₱ doz, $9. 40&10&10%
Barnes Mfg. Co . . . 40@40&10%
Nock's . . . 30%
Brown's Pat . . . 25%
Scandinavian . . . 90@90&10%
E. T. Fraim's Keystone Scandavian: Nos. 119, 120, 130 and 140 . . . 90&10% Other Nos . . . 65%
Ames Sword Co. up to No. 150 . . . 40%
Ames Sword Co. above No. 150 . . . 50%

Lumber Tools.
Ring Peavies, "Blue Line" . . . ₱ doz $20.00
Ring Peavies, Common . . . ₱ doz $18.00
Steel Socket Peavies . . . ₱ doz $21.00
Mall. Iron Socket Peavies . . . ₱ doz $19.00
Cant Hooks, "Blue Line . . ₱ doz $16.00
Cant Hooks, Common Finish . . ₱ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish . . . $16.00
Cant Hooks, Mall. Socket Clasp, Common Finish . . . ₱ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish . . . ₱ doz $14.00
Cant Hooks, Clip Clasp, Common Finish . . . ₱ doz $12.00
Hand Spikes . . . ₱ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₱ doz., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₱ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₱ doz, 12 ft. $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₱ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks . . . ₱ doz $18.00

Lustro—
Four-ounce Bottles . . . ₱ doz, $1.75; ₱ gross . . . $17.00

Mallets—
Hickory . . . 20&10@20&10&10%
Lignumvitæ . . . 20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%

Match Safes—
Dangerfield's Self-Igniting . . . ₱ doz $1.5

Mattocks. Regular list . . . 60@60&10%

Meat Cutters—
Dixon's ₱ doz . . . 40&5%

Nos.	2	3
	$14.00	$17.00

Woodruff's ₱ doz . . . 40&5%

Nos.	100	150
	$15.00	$18.00

Champion ₱ doz . . . 40&45%

Nos.	200	300	400
	$22.00	$27.00	$40.00

Hales Pattern ₱ doz . . . 70@70&5%

Nos.	11	12	13
	$27.00	$33.00	$45.00

American . . . 30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Enterprise . . . 30%

Nos.	10	12	22	32	42
Each	$3	$2.50	$4	$6	$15

Pennsylvania . . . 40&10%

Nos.	1	2	3	00
₱ doz	$24.00	$28.00	$36.00	$28.00

Miles' Challenge ₱ doz . . . 45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

Home No. 1 . . . ₱ doz, $26.00, 55&10%
Draw Cut, each:

Nos.	5	2	6	8	
	$50	$75	$80	$225	20@25%

Beef Shavers (Enterprise) . . . 20&10@30%
Chadborn's Smoked Beef Cutter. ₱ doz $66.00

Mincing Knives—
Am. (2d quality, ₱ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18 . . . net
Lothrop's . . . 20&10%
Smith's, ₱ doz, Single, $2.00: Double, $3 40@45%
Knapp & Cowles . . . 50&10@60%
Buffalo Adjustable . . . ₱ doz $3.00, 25%
Buffalo Double Adj'table. ₱ doz $3.00, 25%

Molasses Gates—
Stebbin's Pat. 75%
Stebbin's Genuine .60&10&10%
Stebbin's Tinned Ends .40&10%
Chase's Hard Metal .50&10%
Bush's .20%
Lincoln's Pattern. .70@70&10
Weed's .20&10%
Boss, ₱ doz:
Nos. 1, $7; No. 2, $8; No. 3, $9; No. 4 $10 .60&10&10%

Money Drawers....₱ doz, $18@$20

Muzzles—
Safety ₱ doz, $3.00, 25 %

Nails, see Trade Report.
Wire Nails, Papered.
Association list, July 15, 1889 .70&10@70&10&5%
Tack Mfrs.' list .70@70&5%
Wire Nails, Standard Penny.
Card June 1, '89, base .$2.55@$2.80

Nail Puller—
Curtiss Hammer ₱ doz $9.00
Giant, No. 1 ₱ doz. $30.00, 10%
Pelican ₱ doz, $9.00, 25%
Boss ₱ doz, $30.00, 30%
Lightning ₱ doz $21.00

Nail Sets—
Square ₱ gr., $4.00@$4.25
Round ₱ gr. $3.25
Cannon's Diamond Point ₱ gr., $12, 20%

Nut Crackers—
Table (H. & B. Mfg. Co.) .40%
Blake's Pattern ₱ doz $2.00, 10%
Turner & Seymour Mfg. Co. 50%

Nuts—

Nuts, off list Jan. 1, 1888:	Square.	Hex.
Hot Pressed	5.4¢	5.9¢
Cold Punched	5.4¢	5.5¢

In lots less than 100 ₱, ₱ ₱, add ½¢; 1-₱ boxes, add 1¢ to list.

Oakum—
Government ₱ ₱ 7½@7¾¢
U. S. Navy ₱ ₱ 6¾@6¾¢
Navy ₱ ₱ 5½@5¾¢

Oilers—
Zinc and Tin .65@65&10%
Brass and Copper .50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10@10&10%
Malleable, Hammers, Old Pattern, same list .40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass .50%
Olmstead's Tin and Zinc .60%
Olmstead's Brass and Copper .50%
Broughton's Zinc .60%
Broughton's Brass .50%
Gem P. D. & Co. ₱ gro. $2

Packing, Steam—
Rubber—
Standard .60&10@60&10&10%
Extra .50&10@60%
N. Y. B. & P. Co., Standard .50&10&5%
N. Y. B. & P. Co., Empire 70%
N. Y. B. & P. Co., Salamander. ₱ ₱ 65¢, 30%
Jenkins' Standard ₱ ₱ 80¢, 35%

Miscellaneous—
American Packing .10¢@11¢ ₱ ₱
Russia Packing .14¢ ₱ ₱
Italian Packing .13¢@14¢ ₱ ₱
Cotton Packing .15¢@17¢ ₱ ₱
Jute .7¢@8¢ ₱ ₱

Padlocks—
See Locks.

Pails—

Galvanized Iron— Quarts	10	12	14
Hill's Light Weight, ₱ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ₱ dz.	3.00	3.25	3.75
Whiting's	2.75	3.00	3.25
Sidney Shephard & Co.	2.80	3.00	3.40
Iron Clad	2.75	3.00	3.25
Fire Buckets	2.75	3.25	3.50

Buckets, see Well Buckets.

Indurated Fibre Ware—25%
Star Pails, 12 qt ₱ doz $6.00
Fire, Stable and Milk, 14 qt ₱ doz $7.80

Standard Fibre Ware—	Plain.	Decr'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No. 1, 12 qt. per doz	4.50	
Fire Pails, No. 2, 14 qt. per doz	5.00	

Pencils—
Faber's Carpenters' high list 50%
Faber's Round Glit ₱ gro $5.25
Dixon's Lead ₱ gro $4.50
Dixon's Lumber ₱ gro $6.75
Dixon's Carpenters' 40&10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00 60 @ 60&10%

Picture Nails—
Brass Head, Sargent's list .50&10&10%
Brass Head, Combination list .50&10%
Porcelain Head, Sargent's list .50&10&10%
Porcelain Head, Combination list .40&10%
Niles' Patent 40%

Pinking Irons— ₱ doz 65¢ net

Pipe, Wrought Iron—
List September 18, 1889.
1¼ and under, Plain .50%
1¼ and under, Galvanized .42½%
1½ and over, Plain .62½%
1½ and over, Galvanized .50%
Boiler Tubes, Iron.
1¾ and under .50%
2 in. and larger .55%

Planes and Plane Irons—
Wood Planes—
Molding .50&10@60%
Bench, First Quality .60@60&5%
Bench, Second Quality .60&10&10@70%
Bailey's (Stanley R. & L. Co.) .40&10%
Iron Planes—
Bailey's (Stanley R. & L. Co.) .40@10%
Miscellaneous Planes (Stanley R. & L. Co.) .20&10%
Victor Planes (Stanley R. & L. Co.) 20&10%
Steer's Iron Planes .35@35&5%
Meriden Mal. Iron Co.'s .30@10@30@10&10%
Davis's Iron Planes .30@10@30@10&10%
Birmingham Plane Co. .50@50&5%
Gage Tool Co.'s Self-Setting .20&10%
Chaplin's Iron Planes .40@40&5%
Sargent's 30&10@30&10&10%
Plane Irons—
Plane Irons .20&10%
Plane Irons, Butcher's .$5.00@$5.25 to £
Plane Irons, Buck Bros 30%
Plane Irons, Auburn Tool Co., "Thistle" 40%
Sandusky Tool Co.:
Single and Cut .30%
Double .40%
L. & I. J. White .25%

Pliers and Nippers—
Button's Patent .30&10@40%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in. $21.00 ₱ doz .20&10@33⅓%
Humason & Beckley Mfg. Co. .50@50&10%
Gas Pliers .60%
Gas Pliers, Custar's Nickel Plated .60&5%
Eureka Pliers and Nippers .40%
Russell's Parallel .25%
P. S. & W. Cast Steel .50%
P. S. & W. Tinners' Cutting Nippers, add 6% dis 10%
Carew's Pat. Wire Cutters .20%
Morrill's Parallel, ₱ doz, $12.00 .30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 40@40&5%

Plumbs and Levels—
Regular List .70&10@70&10&10%
Disston's .45&10%
Pocket Levels .70&10@70&10&10%
Davis Iron Levels .30%
Davis' Inclinometers .10&10%

Polish, Metal.
Prestoline .20&10%
Prestoline Paste .33⅓%
Gaston's Silver Compound .33⅓%

Pokes, Animal—
Bishop's I. X. L. ₱ doz $6.50
Bishop's O. K. ₱ doz $5.50
Bishop's Pioneer ₱ doz $3.75
Bishop's American ₱ doz $3.00

Poppers, Corn—
Round or Square, 1 qt. ₱ gr $12.00@15.00
Round or Square, 2 qt. ₱ gr $25.00@26.00

Post Hole and Tree Augers and Diggers—
Samson Post Hole Digger, ₱ doz $36.00, 25&10%
Fletcher Post Hole Augers, ₱ doz $36, 20%
Eureka Diggers ₱ doz $16.00@17.00
Leed's ₱ doz $8.00@9.00
Vaughan's Post Hole Auger, ₱ doz $13.00@14.00
Kohler's Little Giant ₱ doz $18.00
Kohler's Hercules ₱ doz $15.00
Kohler's New Champion ₱ doz $9.00
Schneidler ₱ doz $18.00
Ryan's Post Hole Diggers ₱ doz $24.00
Cronk's Post Bars, ₱ doz $60.00, 50&5@50&10%
Gibbs Post Hole Digger, ₱ doz $30.00, 50%
Imperial, ₱ doz, $15 45%

Potato Parers—
White Mountain ₱ doz $5.00@5.50
Antrim Combination ₱ doz $8.00
Hoosier ₱ doz $13.50

Pruning Hooks and Shears—
Disston's Combined Pruning Hook and Saw ₱ doz $18.00, 20&10%
Disston's Pruning Hook, ₱ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools .40%
Pruning Shears, Henry's Pat., ₱ doz $3.75@4.00 net
Henry's Pruning Shears, ₱ doz $4.25@4.50 net
Wheeler, M. & C. Co.'s Combination, ₱ doz $12.00, 20%
Dunlap's Saw and Chisel, ₱ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2, 7.25

Pulleys—
Hot House, Awning, &c. .60&10%
Japanned Screw 60&10%
Brass Screw .60&10%
Japanned Side .60%&10%
Japanned Clothes Line .60&10%
Empire Sash Pulley 55@60%
Moore's Sash, Anti-Friction 50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50 .50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 .50%
Hay Fork, "F" Common and Pat. Bushed .20%
Hay Fork, Tarbox Pat. Iron .20%
Hay Fork, Reed's Self-Lubricating .60%
Shade Rack .45%
Tackle Blocks See Blocks
Moore's Anti-Friction 5 in. Wheel, ₱ doz $12.00 .40%

Pumps—
Cistern, Best Makers .60@60&10%
Pitcher Spout, Best Makers .67½@70%
Pitcher Spout, Cheaper Goods .70@70&5%

Punches—
Saddlers' or Drive, good, ₱ doz .60@65¢
Bemis & Call Co.'s Cast Steel Drive .50&5%
Bemis & Call Co.'s Springfield Socket .50&5%
Spring, good quality ₱ doz $2.50@2.60
Spring, Leach's Pat. 15%
Bemis & Call Co.'s Spring and Check .40%
Solid Tinners' ₱ doz $1.44, 55%
Tinners' Hollow Punches .20&2%
Rice Hand Punches 15%
Avery's Revolving 40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—
Sliding Door, Wr't Brass, ₱ ₱ 35¢ .15%
Sliding Door, Bronzed Wr't Iron ₱ ft. 7¢
Sliding Door, Iron, Painted, ₱ foot 4¢, 40%
Barn Door, Light. In. ⅝ ¾

	Per 100 feet	$2.00	2.50	3.10, 10%

B. D. for N. E. Hangers—

	Small.	Med.	Large.
Per 100 feet	$2.15	2.70	3.25..net

Terry's Steel Rail, ₱ foot 4½¢
Victor Track Rail, 7¢ ₱ foot 50&2%
Carrier Steel Rail, ₱ foot 4½¢
Moore's Wrought Iron 25%

Rakes—
Cast Steel, Association goods 70%
Cast Steel, outside goods .60&10@70%
Malleable 70&70&5%
Gibbs Lawn Rake $12.00, 50&15%
Canton Lawn Rake $9.00, 50&10%
Ft. Madison Prize Bow Brace and Peerless 65%
Fort Madison Steel Tooth Lawn Rake, $6.00 25%

Razors—
J. R. Torrey Razor Co 20%
Wostenholme and Butcher, $10.00 to £, 10%

Razor Strops—
Genuine Emerson .60@60&5%
Imitation ₱ doz $2.00, 20&10&5%
Torrey's 20%
Badger's Belt and Com ₱ doz $2.00
Lamont Combination ₱ doz $4.00

Rivets and Burrs—
Iron, list Nov. 17, '87 .50%
Copper .50&10@60%

Rivet Sets .50&10%

Rods—
Stair, Brass .25&2%
Stair, Black Walnut ₱ doz 40¢

Rollers—
Barn Door, Sargent's list .60&10&10%
Acme Moore's Anti-Friction 55%
Union Barn Door Roller 70%

Rope—
Manufacturers' prices for large lots:
Manila, ½ in. and larger ₱ ₱ 13¼¢
Manila ¾ in. ₱ ₱ 13¾¢
Manila, ¼ and 5-16 in. ₱ ₱ 14 ¢
Manila Tarred Rope ₱ ₱ 12¾¢
Manila, Hay Rope ₱ ₱ 13¼¢
Sisal, ½ inch and larger ₱ ₱ 11¼¢
Sisal ⅝ in. ₱ ₱ 11¾¢
Sisal, ¼ and 5-16 in. ₱ ₱ 12 ¢
Sisal, Hay Rope ₱ ₱ 11¼¢
Sisal, Tarred Rope ₱ ₱ 10¾¢
Sisal, Medium Lathe Yarn ₱ ₱ 10¾¢
Cotton Rope ₱ ₱ 15¢@18¢ net
Jute Rope ₱ ₱ 8¢

1% for cash in 10 days.

Rules—
Boxwood .80&10&10@80&10&10&5%
Ivory .50@50&10%
Starrett's Rules and Straight Edges, Steel .25&10%

Sad Irons—
From 4 to 10, at factory ₱ 100 ₱, $2.40@$2.55
Self-Heating ₱ doz $9.00 net
Self-Heating, Tailors' ₱ doz $18.00 net
Gleason's Shield and Toilet .25%
Mrs. Pott's Irons .40@40&10%
Enterprise Star Irons .40%
Combined Fluter and Sad Iron, ₱ doz, $15.00 15%
Fox Reversible, Self-Fluter ₱ doz $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England 6¢, 15%
Mahony's Troy Pol. Irons 25%
Sensible 20@20&5%
National Self-Heating 30%

Sand and Emery Paper and Cloth—
List April 19, 1886 .50@50&10%
Sibley's Emery and Crocus Cloth .30%

Sash Cord—
Common ₱ ₱, 10@11¢
Patent, good quality ₱ ₱ 13@13½¢
White Cotton Braided, fair ₱ ₱ 28@29¢
Common Russia Sash ₱ ₱ 13½¢
Patent " " ₱ ₱ 15¢
Cable Laid Italian Sash ₱ ₱ 22¢@23¢
India Cable Laid " ₱ ₱ 13¢
Silver Lake—
A Quality, White, 50¢ .10&10&5%
A Quality, Drab, 55¢ .10&10&5%
B Quality, White, 50¢ .20&10&5%
B Quality, Drab, 55¢ .20&10&5%
C Quality, White (only) .26¼¢@28¢
Sylvan Spring, Extra Braided, White, 34¢
Sylvan Spring, Extra Braided, Drab .35¢
Semper Idem, Braided, White .30¢
Egyptian, India Hemp, Braided .25¢
Samson—
Braided, White Cotton, 50¢ .30@30&5%
Braided, Drab Cotton, 55¢ .30@30&5%
Braided, Italian Hemp, 55¢ .30@30&5%
Braided, Linen, 80¢ .30@30&5%

Sash Locks—
Clark's, No. 1, $10; No. 2, $8 ₱ gr. .33⅓%
Ferguson's 33⅓%
Morris and Triumph, list Aug. 16, 1886, 60&2%
Victor .60&10&2%
Walker's 10%
Attwell Mfg. Co. .25&33⅓%
Reading .60%&10@66⅔&10&10%
Hammond's Window Springs .40%
Common Sense, Jap'd, Cop'd and Br'zed ₱ gr $4.00
Common Sense, Nickel Plated ₱ gr $10.00
Universal .30%
Kempshall's Gravity 60%
Kempshall's Model .60@60&10%
Corbin's Daisy, list Feb. 15, 1886 .70%
Payson's Perfect .60@60&10%
Hugunin's Sash Balances .25&5&2%
Hugunin's New Sash Locks .25&5&2%
Stoddard "Practical" 10%
Ives' Patent .60@60&10%
Liesche's, Nos. 100 and 110, ₱ gr $8; 105, $10.00 .20&10%
Davis, Bronze, Barnes Mfg. Co. .50%
Champion Safety, list March 1, 1888 55@55&5%
Security .70%
Buckeye ₱ gro $4.80

Sash Weights—
Solid Eyes ₱ ton $22.00

Sausage Stuffers or Fillers—
Miles' "Challenge," ₱ doz $20, 50@50&5%
Perry ₱ doz, No. 1, $15.00; No. 0, $21.00 .50&5@50&10%
Draw Cut No. 4, each $30.00 20%
Enterprise Mfg. Co. 20&10@30%
Silver's 40&10%

Saws—
Disston's Circular .45@45&5%
Disston's Cross Cuts .45@45&5%
Disston's Hand 25@25&5%
Atkins' Circular Shingle and Heading 50&10%
Extras sometimes given by jobbers.
Atkins' Silver Steel Diamond X Cuts ₱ foot 70¢
Atkins' Special Steel Dexter X Cuts ₱ foot 50¢
Atkins' Special Steel Diamond X Cuts ₱ foot 30¢
Atkins' Champion and Electric Tooth X Cuts ₱ foot 24@25¢
Atkins' Hollow Back X Cuts ₱ foot 18¢
Atkins' Mulay, Mill and Drag .40&10%
Atkins' One-Man Saw, with handles, ₱ foot 32¢
W. M. & C., Hand .30&5@30&10%
W. M. & C., Champion X Cuts, Regular ₱ foot 24@26¢
W. M. & C. X Cuts, Thin Back, ₱ foot 27¢@29¢
Peace Circular and Mill .45&10%
Peace Hand Panel and Rip 20&10@20&10&10%
Peace Cross Cuts, Standard ₱ foot 25¢
Peace Cross Cuts, Thin Back ₱ foot 27@28¢
Richardson's Circular and Mill 45@45&10%
Richardson's X Cuts, No. 1, 39¢; No. 2, 27¢; No. 3, 24¢

Hack Saws—
Griffin's, complete .40&10@50%
Griffin's Hack Saw, Blades .40&10@50%
Star Hack Saws and Blades .25%
Diamond Hack Saws and Blades .25%
Eureka and Crescent .25%

Saw Frames—
White Vermont ₱ gro $9.00@10.00
Red, Polished and Varnished ₱ doz $1.50, 25%

Saw Sets—
Stillman's Genuine ₱ doz $5.00@7.75, 40&5%
Stillman's Imita ₱ doz $3.25@5.25, 40&5@40&10%
Common Lever ₱ doz $2.00, 40&5%
Morrill's No. 15, 00; Nos. 3&4, $24.00, 40&10@50%
Leach's No. 0, $8.00; No. 1, $15, 15@20%
Nash's 20&10@20&10&10%
Hammer, Hotchkiss $5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. 30&5%
Bemis & Call Co.'s Lever and Spring Hammer 30&5%
Bemis & Call Co.'s Plate 10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine $13.00, 50&10%
Aiken's Imitation $7.00, 55&5%
Hart's Pat. Lever 20%
Disston's Star, ₱9, No. 15, $5.50; 20&10@20&10&10%
Atkin's Lever, ₱ doz No. 1, $6.00; No. 2, $9.60
Atkin's Criterion ₱ doz $7.50
Croissant (Keller), No. 1, $15.00; No. 2, $24.00 40&10%
Avery's Saw Set and Punch 50%
Am. Tool Co.'s Superior ₱ doz $15, 50%

Saw Tools—
Atkins' Perfection ₱ doz $15.00
Atkins' Excelsior ₱ doz $6.00
Atkins' Giant ₱ doz $4.00

Scales
Hatch, Counter, No. 171, good quality, ₱ doz $21.00
Hatch, Tea, No. 161 ₱ doz $6.75@$7.00
Union Platform, Plain $2.10@2.20
Union Platform, Striped $2.20@2.30
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka 25%
Chatillon's Favorite 40%
Family, Turnbulls 30@30&10%
Riehle Bros.' Platform 40%

Scale Beams—
Scale Beams, List Jan. 12, '82 .50&10@50&10&5%
Chatillon's No. 1 40%
Chatillon's No. 2 50%

Scrapers—
Adjustable Box Scraper (S. R. & L. Co.) $6.50 30&10%
Box, 1 Handle ₱ doz $4.00, 10%
Box, 2 Handle ₱ doz $6.00, 10%
Defiance Box and Ship 20&10%
Foot 50&10@60%
Ship, Common ₱ doz $3.50 net
Ship, R. I. Tool Co. 10%

Screen Window and Door Frames—
Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons 33⅓@33⅓&10%
Stearns' Frames and Corners .25@25&10%

Screw Drivers—
Douglas Mfg. Co. .20&10&10%
Disston's 45&10%
Disston's Pat. Excelsior 45&10%
Buck Bros. 30%
Stanley R. & L. Co.'s
Varnished Handles .65&10%
Black Handles 60&10%
Sargent & Co.'s
No. 1 Forged Blade .60&10&10%
Nos. 20, 30 and 60 .60%&10&10%
Knapp & Cowles' No. 1 .60&20@70%
No. 1 Extra 60@60&10%
Nos. 00 & 4 .50&5@50&10&5%
Stearns' 25&10&5%
Gay & Parsons 35%
Champion 25&10%
Clark's Pat. 30@33⅓%
Crawford's Adjustable 30%
Ellrich's Socket and Ratchet .25@25&10%
Allard's Spiral, new list 25%
Kolb's Common Sense ₱ doz $6.00, 25&10%
Syracuse Screw-Driver Bits .30&20&5%
Screw Driver Bits ₱ doz 50@75¢
Screw-Driver Bits, Parr's ₱ gro $6.25
Fray's Hol. Hdle. Sets, No. 3, $12.00, 25@25&10%
P. D. & Co.'s all Steel 50%
Cincinnati 20&10%
Brace Screw-Drivers 25&10%

Screws—
Wood Screws—List March 1, 1889

Flat Head Iron	50%
Round Head Iron	40%
Flat Head Brass	45%
Round Head Brass	35%
Flat Head Bronze	45%
Round Head Bronze	35%

Extra 5 @ 10 % often given

Machine—
Flat Head, Iron.....55%
Round Head, Iron.....50%

Bench and Hand—
Bench, Iron.....55&10@55&10&10%
Bench, Wood, Beech.....₩ doz $2.25
Bench, Wood, Hickory.....20&10%
Hand, Wood.....25&10@25&10&5%
Lag, Blunt Point, according to size.....75&10@80%
Coach and Lag, Gimlet Point.....75%
Bed.....25&5%
Hand Rail, Sargent's.....60%&10%
Hand Rail, H. & B. Mfg. Co...70&10@75%
Hand Rail, Am. Screw Co.....75%
Jack Screws, Millers Falls list..50@50&5%
Jack Screws, P. S. & W.....35%
Jack Screws, Sargent..60&10@60&10&5%
Jack Screws Stearns'.....40@40&10%

Scroll Saws—
Lester, complete, $10.00.....25%
Rogers, complete, $4.00.....25%
Barnes' Builders' and Cabinet Makers', $15.....25%
Barnes' Scroll Saw Blades.....35%

Scythe Snaths..50&5&2@50&10&2%

Shears—
American (Cast) Iron...75&10@75&10&5%
Pruning...See Pruing Hooks and Shears.
Barnard's Lamp Trimmers...₩ doz $3.75
Tinners'.....20&2%
Seymour's, List, Dec., 1881.
60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881.
60&10&10@60&10&10&5%
Heinisch's Tailor's Shears.....33⅓%
First quality C. S. Trimmers..80@80&10%
Second quality C. S. Trimmers.
80&10@80&10&10%
Acme Cast Shears.....10&10%
Diamond Cast Shears.....10%
Clipper.....10&10%
Victor Cast Shears...75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel.....40%
Chicago Drop Forge & F. Co., Solid Steel Forged.....60%
Clauss Shear Co., Japanned.....70%
Clauss Shear Co., Nickeled, same list..60%

Sheaves—
Sliding Door—
M. W. Co., list July, 1888..50&10@60&5%
R. & E., list Dec. 18, 1885.....55&20%
Corbin's list.....60&10&2%
Patent Roller.....60&10&2%
Patent Roller, Hatfield's.....75%
Russell's Anti-Friction, list Dec. 18, 1885.....60&2%
Moore's Anti-Friction.....50%
Sliding Shutter—
R. & E. list Dec. 18, 1885.....60&10&2%
Sargent's list.....60&10%
Reading list.....60&10&10%

Ship Tools—
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%

Shoes, Horse, Mule, &c.—
Horse—
Burden's, Perkins', Phœnix, at factory, $4.00
Mule—
Add $1 ₩ keg to above prices.
Ox, Wrought—
Ton lots.....₩ ℔ 9¢
1000 ℔ lots.....₩ ℔ 9½¢
500 ℔ lots.....₩ ℔ 10¢

Shot—
(Eastern prices 2¢ off, cash, 5 days.
Drop, ₩ bag, 25 ℔.....$1.21
Drop, ₩ bag, 5 ℔.....30
Buck and Chilled, ₩ 25-℔ bag.....1.40
Buck and Chilled, ₩ 5-℔ bag.....35

Shovels and Spades—
Ames' Shovels, Spades, &c., list Nov. 1, 1885.....20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron.....50&10%
Griffith's C. S.....60@60&10%
Griffith's Solid C. S. R. R. Goods.....20%
Old Colony (Sanford Fork & Tool Co).20%
St. Louis Shovel Co.....20@20&7½%
Hussey, Binns & Co.....15@25%
Hubbard & Co.....20@20&7½%
Lehigh Mfg. Co.....50&10%
Payne Pettebone & Son, list January, 1886.....30%
Remington's (Lowman's Pat.)30&10@40%
Rowland's, Black Iron.....50&10%
Rowland's Steel.....60&5@60&10%

Shovels and Tongs—
Iron Head.....60&10@60&10&5%
Brass Head.....60&10&10%

Skeins, Thimble—
Western list.....75&5@75&10%
Columbus Wrt. Steel, list Nov. 1, 1887.20%
Coldbrookdale Iron Co.....50&10%
Utica P. S. T. Skeins.....60%
Utica Turned and Fitted.....35%

Sieves—
Buffalo Metallic, S. S. & Co....50&25&5%
Shaker (Barler's Pat.) Flour Sifters....
₩ doz $2.00; ₩ gr $21.00
Electric.....₩ gr $18.00
Hunter's.....₩ doz $2.00
Smith's Adjustable Sifters...₩ doz $2.00
Smith's Adjustable Milk Strainer.
₩ doz $2.00
Smith's Adjustable T. & C. Strainer.
₩ doz. $1.25
Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ₩ doz..	70¢	90¢
Mesh 20, Nested, ₩ doz..	85¢	$1.00
Mesh 24, Nested, ₩ doz..	$1.00	1.10

Slates—
School, by case.....50@50&10%

Snaps, Harness, &c.—
Anchor (T. & S. Mfg. Co.).....65%
Fitch's (Bristol).....50&10%
Hotchkiss.....10%
Andrews.....50%
Sargent's Patent Guarded....70&10&10%
German, new list.....40&10%
Covert.....50&2%
Covert, New Patent.....50&5&2%
Covert, New R. E.....60&10&2%
Covered Spring.....60&10&10%

Soldering Irons—
Covert's Adjustable, list Jan. 1, 1886, 85&2%

Spoke Shaves—
Iron.....45%
Wood.....30%
Bailey's (Stanley R. & L. Co.).....40&10%
Stearns'.....20&10@30%
Cincinnati.....25&10%

Spoke Trimmers—
Bonney's.....₩ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₩ doz. 55&10%
Douglas'.....₩ doz $9.00, 20%
Cincinnati.....25%

Spoons and Forks—
Tinned Iron—
Basting, Cen. Stamp. Co.'s list..70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list.....70&10%
Buffalo S. S. & Co.....33⅓&2%
Silver-Plated—(4 mos. or 5% cash 30 days).
Meriden Brit. Co., Rogers.....50%
C. Rogers & Bros.....50%
Rogers & Bro.....50%
Reed & Barton.....50%
Wm. Rogers Mfg. Co.....50&10@60%
Simpson, Hall, Miller & Co.....50&10
Holmes & Edwards Silver Co...60@60&5%
L. Boardman & Son.....50&10%
Miscellaneous.
Holmes & Edwards Silver Co.:
No. 67 Mexican Silver.....50&10&5%
No. 30 Silver Metal.....50&10&5%
No. 24 German Silver.....50&10&5%
No. 50 Nickel Silver.....50%
No. 49 Nickel Silver.....50&10
German Silver.....50@50&5
German Silver, Hall & Elton..50&5% cash
Nickel Silver.....50&5@50&10&5% cash
Britannia.....60%
Boardman's Nickel Silver.....50 } 1 mos
Boardman's Britannia Spoons, case lots.....60 } net

Springs—
Elliptic, Concord, Platform and Half Scroll.....60@60&5%
Cliff's Bolster Springs.....25%

Squares—
Steel and Iron.....} 75&10@80%,
Nickel-Plated.....} full cs. ex. 10%
Try Square and T Bevels..60&10@60&10&10%
Disston's Try Square and T Bevels.45&10%
Winterbottom's Try and Miter....30&10%
Starrett's Micrometer Caliper Squares. 25%
Avery's Flush Bevel Squares.....40%
Avery's Bevel Protractor.....50%

Standard Fibre Ware—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10½ in.....	$2.00	$2.25
Wash-Basins, 12 in.....	2.25	2.75
Keelers, 11¼ in.....		4.00
Cuspidors.....		8.00
Spittoons, "Daisy," 8 in....	4.00	4.50
Peck Measure.....	4.00	
Half-peck Measure.....	3.50	

See also Pails.

Staples—
Fence Staples, Galvanized.} Same price
Fence Staples, Plain.....} as B'rb Wire
See Trd. Rep.

Steelyards.....40&10@50%

Stocks and Dies—
Blacksmith's
Waterford Goods.....30&5@30&10%
Butterfield's Goods.....30&5@30&10%
Lightning Screw Plate.....25@30%
Reece's New Screw Plates....33⅓&5@40%
Reversible Ratchet.....30%
Gardner.....25%

Stone—
Hindostan No. 1, 3¢; Axe, 3½¢; Slips No. 1, 4½¢
Sand Stone.....₩ ℔ 2½¢
Washita Stone, Extra.....₩ ℔ 19@20¢
Washita Stone, No. 1.....₩ ℔ 14@15¢
Washita Stone, No. 2.....₩ ℔ 10@11¢
Washita Slips, No. 1, Extra..₩ ℔ 36@38¢
Washita Slips, No. 1.....₩ ℔ 24@25¢
Arkansas Stone, No. 1, 4 to 6 in₩ ℔ $1.50
Arkansas Stone, No. 1, 6 to 9 in₩ ℔ $1.85
Turkey Oil Stone, 4 to 8 in.....₩ ℔ 40¢
Turkey Slips.....₩ ℔ $1.00@1.50
Lake Superior, Chase.....₩ ℔ 16¢
Lake Superior Slips, Chase...₩ ℔ 31@32¢
Seneca Stone, Red Paper Brand....₩ ℔ 18@20¢
Seneca Stone, High Rounds..₩ ℔ 20@25¢
Seneca Stone, Small Whets..₩ gro $24.00

Stove Polish—
Joseph Dixon's.....₩ gro $6.00,¶0%
Gem.....₩ gro $4.50, 10%
Gold Medal.....₩ gro $6.00, 25%
Mirror.....₩ pro $6.00, —%
Lustro.....₩ gro $4.75
Ruby.....₩ gro $3.75
Rising Sun, 5 gro lots.....₩ gro $5.50
Dixon's Plumbago.....₩ ℔ $5.00
Boynton's Noon Day, ₩ gro.....13.00
Parlor Pride Stove Enamel..₩ gro 2 cans
Yates' Liquid, ½ ⅓ 5 10 gal....8¢
₩ gal ...$0.90 .80 .70 .60
Yates Standard Paste Polish, 10-℔ cans, ₩ ℔ 15¢
Jet Black.....₩ gro $3.50
Japanese.....₩ gro $3.50
Fireside.....₩ gro $2.50
Diamond O. K. Enamel.....₩ gro $19.00
Bonnell's Liquid Stove Polish..₩ gro $9.00
Bonnell's Paste Stove Polish..₩ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans.....12½¢
Black Jack Water Paste, 5 and 10 ℔ cans.....12½¢
Nickel Plate Paste.....₩ gro $6.00

Tacks, Brads, &c.—
List, Jan. 2, 1888.—[*Note.*—Some manufacturers are selling Tacks at slightly higher prices than those named]:
American Iron Carpet, Blued.....80%
American Iron Carpet, Tinned.....80&10@10%
Steel Carpet, Blued.....80%
Steel Carpet, Tinned.....80&10&10%
Swedes Iron Carpet, Blued.....80%
Swedes Iron Carpet, Tinned..80&10@10%
American Iron Cut.....75@75&10@10&5%
Swedes Iron.....75&5@75&10@10&5%
Swedes Iron, Upholsterers', 75&10@80%
Tinned Swedes Iron.....75&10@80%
Tinned Swedes Iron, Upholsterers', 75&10@80%
Gimp and Lace.....75&10@80%
Tinned Gimp and Lace.....75&10@80%
Swedes Iron Trimmers'.75&10@75&10&5%
Swedes Iron Miners'...75&10@75&10&5%
Swedes Iron Bill Posters' or Railroad, 75&10@75&10&5%
Swedes Steel (Swedes Iron price list), 80@80&5%
Copper Tacks.....50&10%
Copper Finishing, Trunk and Clout Nails.....50&10%
Finishing Nails.....75@75&5%
Trunk and Clout Nails.....70&10%
Tinned Trunk and Clout Nails...70&10%
Basket Nails.....70&10%
Common and Patent Brads.....70&10%
Hungarian Nails.....70&10%
Chair Nails.....70&10%
Zinc Glaziers' Points.....50@50&5%
Cigar Box Nails.....50&10@50&10&5%
Picture-Frame Points..50&10@50&10&5%
Looking-Glass Tacks..50&10@50&10&5%
Leathered Carpet.....50&10@50&10&5%
Brush Tacks.....50&10@50&10&5%
Shoe Finders,' List Jan 2, 1888, 10&10@10&10&5%
Lining and Saddle Nails, List Jan. 1, 1886:
Silvered.....30&10&10%
Japanned.....20&10&10%
Double-Pointed Tacks.....85%
Wire Carpet Nails.....50&10%
Wire Brads & Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....50&10%

Tap Borers—
Common and Rind.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....20&10&30%
Clark's.....33⅓@35%

Tapes, Measuring—
American.....33⅓@33⅓&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—
Tin Case.....80@80&10%

Thimble Skeins—See Skeins.

Ties, Bale— Steel
Standard Wire, list.....50&10@5%

Tinners' Shears, &c.—
Shears and Snips (P. S. & W.).....20@25%
Punches, see Punches.
Snips, J. Mallinson & Co.....33⅓%

Tinware—
Stamped, Japanned and Pl'ed, list Jan. 20 1887.....75@75&5%

Tire Benders, Upsetters, &c—
Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Tobacco Cutters—
Champion.....20&10@30%
Wood Bottom.....₩ doz $5.00@$5.25
All Iron.....₩ doz $4.25
Nashua Lock Co's ₩ doz, $18.00 50@55%
Wilson's.....55%
Sargent's.....₩ doz, $24, 55&10%
Acme.....₩ doz, $20.00,40%

Transom Lifters—
Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.....35%
Skylight Lifters.....35%
Crown, Eagle and Shield.....50%
Reiher's, list Jan. 1, 1887-
Bronzed Iron Rods.....50&10&2
Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2%
Shaw's.....50&10%
Payson's Universal.....40@40&10%

Traps—
Game—
Newhouse.....40@40&5%
Oneida Pattern.....70@70&10%
Game, Blake's Patent.....40@40&5%
Mouse and Rat—
Mouse Wood, Choker, ₩ doz holes, 11@12¢
Mouse, Round Wire.....₩ doz $1.50, 10%
Mouse, Cage, Wire.....₩ doz $2.50, 10%
Mouse, Catch-'em-alive....₩ dz $2.50, 15%
Mouse, Bonanza.....₩ gr $10.00
Mouse Delusion.....₩ gr $15.00
Rat, Decoy.....₩ gr $10.00, 10%
Ideal.....₩ gr $10.00
Cyclone.....₩ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₩ doz 90¢
In full cases.....₩ doz 75¢

Trowels—
Lothrop's Brick and Plastering.25@25&5%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering, 25@25&10%
Peace's Plastering.....25%
Clement & Maynard's.....20%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%

Triers—
Butter and cheese.....25%

Trucks, Warehouse, &c.—
B. & L. Block Co.'s list, '82.....40%

Tubes, Boiler—
See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ½ ℔ Balls.....	22¢	30¢
No. 12, ¼ and ½ ℔ Balls.....	21¢	29¢
No. 18, ¼ and ½ ℔ Balls.....	18¢	28¢
No. 24, ¼ and ½ ℔ Balls.....	18¢	28¢
No. 36, ¼ and ½ ℔ Balls.....	16¢	27¢

No. 264, Matrass, ¼ and ½ ℔ Balls.48@50¢
Chalk Line, Cotton, ½ ℔ Balls.....25¢
Mason Line, Linen, ½ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ½ ℔ Balls (Spring Twine).....11½¢
3-Ply Hemp, 1 ℔ Balls.....12@12½¢
3-Ply Hemp, 1½ ℔ Balls.....11@11½¢
Cotton Wrapping, 5 Balls to ℔...15@16¢
2, 3, 4 and 5-Ply Jute, ½ ℔ Balls.....10¢
Wool.....6½¢@6¾¢
Paper.....13½¢@14¢
Cotton Mops, 6, 9, 12 and 15 ℔ to doz..18¢

Vises—
Solid Box.....60@60&5%
Parallel—
Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%
Saw Filers—
Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....66⅔&10%
Hopkins'.....₩ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%
Combination Hand Vises.....₩ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....20&10%

Wagon Boxes—
Per ℔.....2½¢

Wagon Jacks—
Daisy.....25%

Washer Cutters—
Smith's Pat.....₩ doz $12.00, 20&10&10%
Johnson's.....₩ doz $11.00, 33⅓%
Penny's, ₩ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₩ doz $16.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Washers—

Size.....	⅛	5-16	⅜	½	⅝	¾	1
Washers....	6½	5½	4½	3½	3	3	3

In lots less than 200 ℔, ₩ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

Wedges—
Iron.....₩ ℔ 3½¢
Steel.....₩ ℔ 4 ¢

Well Buckets, Galvanized—
Hill's.....₩ doz, 12 qt, $4.25; 14 qt, $5.25
Iron Clad.....₩ doz, 14 qt, $4.25@$4.50
Whiting's Flat Iron Band.....$4.25@4.50
Whiting's Wired Top..₩ doz $4.00@.4.25

Well Wheels—
8 in., $2.25; 10 in., $2.70; 12 in., $3.25

Wire—
Iron—
Market,
Br. & Ann., Nos. 0 to 18.....70&10%
Cop'd, Nos. 0 to 18.....67½%
Galv., Nos. 0 to 18.....62½%
Tin'd, Tinned list Nos. 0 to 18.....65%
Stone,
Br. and Ann'd, Nos. 16 to 18....72½%
Bright and Ann'd, Nos. 19 to 26 70&10%
Br. and Ann'd, Nos. 27 to 36....75&5%
Tinned.....70@70&5%
Tinned Broom Wire.....70@70&5%
Galvanized Fence.....62½%
Annealed Fence, Nos. 8 and 9.....70&10%
Annealed Grade, Nos. 10 to 14....70&10%
Brass, list Jan. 18, 1884.....25@30%
Copper, list Jan. 18. 1884.....30 @ 35%
Barb Fence.....See Trade Report
Wire on Spools.....65%
Malin's Steel and Tin'd Wire on Spools, 60%
Malin's Brass and Cop. Wire on Spools50%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to 2, 30%
Steel Music Wire, Nos. 12 to 30..55¢ ₩
Picture Wire.....New list, 50%
Barb Wire Safety Guards, ₩ 1000, $9.00, 25%
Wire Clothes Lines, see Lines.

Wire Cloth, Netting, &c.—
Painted Screen Cloth, good quality, ₩ 100 sq. ft., $1.80 @ $1.90
Galvanized Wire Netting.....75@75&5%

Wire Goods—
See Bright Wire Goods.

Wire Rope—
List May 1, 1886.
Iron.....30%
Cast Steel.....40%

Wrenches—
American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10@50%
Coes' Genuine.....55&3%
Coes' "Mechanics'".....55&10&3%
Girard Standard.....70&10%
Machinists', Sterling Wrench Co..70&10%
Lamson & Sessions' Engineers'...60&10%
Lamson & Sessions' Standard....70&10%
Goes' Pattern, Wrought.....} 75&10&5
Girard Agricultural.....} @ 80%
Lamson & Sessions' Agric'l..}
Sterling Wrought.....}
Bemis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Brigg's Pattern.....25%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₩ doz $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....20&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....60&3%
Acme, Nickeled.....50&3%
Walker's.....55&3%
Diamond Steel.....55&3%
Cincinnati Brace Wrenches.....15&10%
Cincinnati Monkey Wrenches...15&10%

Wringers, Clothes—
List March 11, 1889, 2% cash.

Wrought Goods—
Staples, Hooks, &c., list Jan. 12, 1886, 80&20@80&25%

CURRENT METAL PRICES.

OCTOBER 23, 1889.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron :	
⅜ to 2 in. round and square.. 1 to 6 in. x ⅜ to 1 in.....	₩ lb 1.90 @ .. ¢
Refined Iron :	
⅜ to 2 in. round and square.. 1 to 4 in. x ⅜ to 1½ in..... 4⅛ to 6 in. x ⅜ to 1 in ..... 1 to 6 in. x ¼ and 5-16	₩ lb 2.00 @ 2.10¢
Rods—⅜ and 11-16 round and sq..	₩ lb 2.10 @ 2.20¢
Bands—1 to 6 x 3-16 to No. 12.....	₩ lb 2.20 @ 2.30¢
"Burden Best" Iron, base price..	₩ lb 3.00 @ .. ¢
Burden's "H. B. & S." Iron, base price.....	₩ lb 2 80 @ ...¢
"Ulster".....	₩ lb 3.00 @ ....¢
Norway Rods	4.00 @ 5.00¢

Merchant Steel from Store.

	Per pound.
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots.....	2½¢
Best Cast Steel, base price in small lots	8 ¢
Best Cast Steel Machinery, base price in small lots.....	5¢

Sheet Iron from Store.

	Common American.	R. G.	Cleaned.
10 to 16.....₩ lb	2.75 @ 2.80¢	3.25 @	¢
17 to 20.....₩ lb	2.85 @ 3 00¢	3.25 @	3.50 ¢
21 to 24.....₩ lb	3.00 @ 3.10¢	3.50 @	¢
25 and 26....₩ lb	3 20 @	3.50 @	¢
27..... ....₩ lb	3.35 @ 3.37½¢	3.75 @	¢
28.....₩ lb	3.50 @ ...¢	4.00 @	¢
	B. B.		2d qual.
Galv'd, 14 to 20, ₩ lb.	4.50 @ ...	4.98 @	¢
Galv'd, 21 to 24, ₩ lb.	4.87½ @	4.75 @	¢
Galv'd, 25 to 26, ₩ lb.	5 25 @	5.12 @	¢
Galv'd, 27..... ₩ lb.	5.62½ @	5.48 @	¢
Galv'd 28..... ₩ lb.	6.00 @	5.85 @	¢
Patent Planished.....	₩ lb A 10¢	B, 9¢	
Russia.....	₩ lb 9½¢ @ 10¢		
American Cold Rolled B. B.....	₩ lb 5¢ @ 7¢		
Craig Polished Sheet Steel..	₩ lb, 8½¢		

English Steel from Store.

Best Cast	₩ lb 15 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged, Cast.....	₩ lb 16 ¢
Best Double Shear.....	₩ lb 15 ¢
Blister, 1st quality.....	₩ lb 12 ¢
German Steel, Best.....	₩ lb 10 ¢
2d quality.....	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality.....	₩ lb 15 ¢
2d quality.....	₩ lb 14 ¢
3d quality.....	₩ lb 12½¢

METALS.

Tin.

	Per lb
Banca, Pigs.....	22¾¢
Straits, Pigs.....	22½¢
English, Pigs.....	23 ¢
Straits in Bars.....	23¼¢

Tin Plates.

Charcoal Plates.—Bright.

		Per box.
Melyn Grade.....IC, 10 x 14..	$6.15 @	$6 25
" " .....IC, 12 x 12..	6.40 @	6.50
" " ..IC, 14 x 20..	6.15 @	6.25
" " .....IC, 20 x 28..	12.30 @	12.50
" " .....IX, 10 x 14..	7.65 @	7.75
" " .....IX, 12 x 12..	7.90 @	8.00
" " .....IX, 14 x 20..	7.65 @	7.75
" " .....IX, 20 x 28..	15.30 @	15 50
" " .....DC, 12½ x 17..	5 65 @	5.75
" " .....DX, 12½ x 17..	7.15 @	7.25
Calland Grade.....IC, 10 x 14..	6 00 @	6.15
" " .....IC, 12 x 12..	6.25 @	6 40
" " .....IC, 14 x 20..	6.00 @	6.15
" " .....IX, 10 x 14..	7.25 @	7.40
" " .....IX, 12 x 12..	7.50 @	7.65
" " .....IX 14 x 20.	7.25 @	7.40
Allaway Grade.....IC, 10 x 14..	5.25 @	5.40
" " ....IC, 12 x 12 .	5.50 @	5.65
" " .....IC, 14 x 20 .	5.25 @	5.40
" " .....IC, 20 x 28..	10.75 @	....
" " .....IX. 10 x 14..	6.50 @	6.65
" " ...IX, 12 x 12..	6.50 @	....
" " .....IX, 14 x 20 .	5.75 @	....
" " .....IX, 20 x 28..	12.50 @	....
" " ...DC, 12½ x 17..	5.00 @	5.15
" " ..DX, 12½ x 17..	6 00 @	6.15

Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20..	$4.80 @	$4.90
10 x 20..	.... @	7.00
20 x 28..	.... @	10.15
IX, 10 x 14, 14 x 20..	.... @	5 90
BV Grade.—IC, 10 x 14, 14 x 20..	.... @	4.75

Charcoal Plates.—Terne.

Dean Grade.—IC, 14 x 20..	.... @	$4.75
20 x 28.....	.... @	9.50
IX, 14 x 20.....	.... @	5.87½
20 x 28.....	.... @	11.75
Abecarne Grade.—IC, 14 x 20....	4.50 @	4.75
20 x 28....	9.50 @	9.75
IX, 14 x 20...	.... @	5.75
20 x 28...	.... @	11 50

Tin Boiler Plates.

IXX, 14 x 26.....112 sheets.	$13 00 @	$ 3 25
IXX, 14 x 28..... 112 sheets....	.... @	13 25
IXX, 14 x 31 .....112 sheets	.... @	14.75

Copper.

DUTY: Pig, Bar and Ingot, 4¢; Old Copper, 5¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 45 % ad valorem.

Ingot.

Lake	@ 12¾¢
Anchor" Brand....	@ 12 ¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, May 23, 1889, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72	—	20	20	20	21	22	23	26	28
30	—	72	20	20	20	21	23	25	29	....
36	96	—	20	20	20	22	24	28	30	....
36	—	96	20	20	21	23	25	29	31	....
48	96	—	20	20	22	24	26	30	....	....
48	—	96	20	20	23	25	27	31	....	....
60	96	—	20	20	25	27	32	....	....	....
60	—	96	20	21	26	....	....	....	....	....
84	96	—	21	22	..	....	....	....	....	....
84	—	96	22	23	....	....	....	....	....	....
Over 84 in. wide			23	25	....	....	....	....	....	....

All Bath Tub Sheets..... 16 oz. 14 oz. 12 oz. 10 oz

Per pound..... 0.23 0.25 0.27 0 30

Bolt Copper, ⅝ inch diameter and over, per pound..... 20¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles over 60 inches diameter, up to 96 inches diameter, inclusive, 5 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 96 inches diameter, 6 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Segment and Pattern Sheets, 3 cents per pound advance over price of sheets required to cut them from.

Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, 1 cent per pound over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, 2 cents per pound over the foregoing prices.

Copper Bottoms, Pits and Flats.

	Per pound.
14 ounce to square foot and heavier.....	23¢
12 ounce and up to 14 ounce to square foot.....	24¢
10 ounce and up to 12 ounce.....	26¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each..... 8¢

Tinning sheets on one side, 30 x 60 each ..... 30¢

For tinning boiler sizes, 9 in (sheets 14 in. x 60 in.), each. ..... 15¢

For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each ..... 12¢

For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each..... 12¢

Tinning sheets on one side, other sizes, per square foot..... 2½¢

For tinning both sides double the above prices.

Planished Brass and Copper.

14 x 48.

14 and 16 oz. and heavier..31¢. By the case...30¢ ₩ lb

12 oz. and lighter.....33¢. By the case...32¢ ₩ lb

24 x 48 and 30 x 60.

14 and 16 oz. and heavier..44¢. 12 oz.....37¢ ₩ lb

Seamless Brass and Copper Tubes.

O. G.	N. G.	⅜	½	⅝	¾	⅞	1	1¼
8-14	6-12	35	31	28	27	26	25	22
15	13	36	31	29	28	27	26	23
16	14	37	32	30	29	28	27	23
17	15	38	33	31	30	29	28	24
18	16	40	34	32	30	29	28	25
19	17	41	35	33	32	31	30	27
20	18-19	42	37	35	34	33	32	29
21	20	44	39	37	36	35	34	32
22	21	46	40	38	37	36	35	34
23	22	48	42	40	39	38	37	37
24	23	51	44	42	41	39	38	39
25	24	54	47	44	43	42	41	43

Copper, Bronze and Gilding Tube, 2¢ ₩ lb additional.

Brazed Brass Tubing. (To No. 20, inclusive.)

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch.....	45¢
Plain, 5-16 inch.....	45¢
Plain, ¼ inch.....	60¢
Plain, 3-16 inch.....	$1.00
Plain, ⅛ inch.....	1.50
Fancy Tubing, Brass, to No. 20, inclusive.....	43¢ ₩ lb
Bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list.....	25 @ 30 %

Roll and Sheet Brass.

Discount from list. ..... 25 @ 30 %

High Brass Rods.

Over 1 inch diameter.. ..... 27¢

¼ inch to 1 inch diameter, both inclusive..... 24¢

No. 8 and less than ¼ inch diameter..... 26¢

Smaller than No. 8..... 30¢

Hexagon, Octagon and Square, 2¢ ₩ lb advance over Round Rods.

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

Western Spelter	6¢
"Bergenport".....	8¼¢
"Bertha"	7¾ @ 8¢

Zinc.

Duty; Sheet, 2½¢ ₩ lb.

600 lb casks.....	6¼¢
Per lb	7¼¢

Lead.

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 3¢ ₩ lb.

American	4¼¢
Newark	4¼¢
Bar.....	4½¢
Pipe, subject to trade discount....	6 ¢
Tin-Lined Pipe, subject to trade discount....	15¢
Block Tin Pipes, subject to trade discount.....	45¢
Sheet, subject to trade discount.....	6¾¢

Solder.

½ @ ½ (Guaranteed)...	14½¢
Extra Wiping	12½¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson.....	₩ lb 21¢
Hallett's	" 19¢

Fittings.

Cast Iron Fittings, Black and Galvanized.....	75 %
Cast Iron Fittings, Bushings & Plugs.	75&10@75&10&5 %
Cast Iron Fittings, Flanges.....	75 %
Malleable Iron Bushings.....	75&10@75&10&5 %
Malleable Iron Unions.....	70 %
Malleable Iron American Unions.....	55 %
Malleable Iron Unions, Keystone.....	55 %
Wrought-Iron Nipples.....	75&5@75&10 %
Wrought-Iron Couplings.....	70 %
Wrought-Iron Long Screws.....	70@70&5 %
Casing Fittings.....	60 %
Malleable Iron Fittings.....	40 %

Valves, Cocks, &c.

Iron Body Valves.....	70 %
Throttle Valves, Iron Body.....	70 %
All-Iron Valves.....	65 %
Compression Gauge Cocks.....	60 %
Mississippi Gauge Cocks.....	60 %
Register Gauge Cocks.....	65@65&10 %
Air Cocks and Radiator Air Cocks....	65@65&10 %
Steam Gauge Cocks.....	60 %
Oil Cups, Plain, Elbow, new pattern, T and Lever Handle.....	65@65&10 %
Globe Oil Cups.....	55 %
Common Lubricators.....	65@65&10 %
Lubricators with Air Cocks.	65@65&10 %
Iron Body Lubricators.....	60 %
Steam Whistles.....	65 %
Whistle Valves	65 %
Water Gauges.....	65 %
Brass Expansion Joints.....	55 %
Pump Valves.....	55 %
Soldering Unions.....	65 %
Soldering Nipples.....	70 %
Brass Unions (Union Joints).....	65 %
Radiator Nipples.....	6 %
Fusible Plugs.....	60 %
Oil Pumps.....	55 %
Self-Acting Air Valves.....	65 %
Vacuum Valves.....	55 %
Steam Swing Joints.....	55 %
Iron Strainers.....	55&10 %
Jenkins' Iron Body Valves, except Gate Valves.	60&10 %
Jenkins' All-Iron Valves, except Gate Valves.....	60 %
Jenkins' Iron Body Gate Valves.....	65 %
Jenkins' All-Iron Gate Valves	55 %
Iron Cocks, all Iron.....	65 %
Iron Cocks, with Brass Plugs.....	65 %
Brass Globe, Angle and Cross Valves.....	65 %
Brass Globe Valves, Finished.....	45 %
Brass Globe and Angle Valves, hose outlet.....	65 %
Brass Garden Hose Valves.....	65 %
Brass Caps for Hose Valves.....	60 %
Brass Horizontal, Vertical and Angle Check Valves.	65 %
Brass Safety Valves.....	65 %
Brass Safety Valves, low pressure.....	65 %
Brass Safety Valves, low pressure, with balance weight.....	65 %
Brass Butterfly Valves.....	55 %
Brass Throttle Valves.....	55 %
Brass Radiator Valves.....	65 %
Brass Radiator Valves, Jenkins'.....	65 %
Brass Jenkins' Globe, Angle, Cross, Corner, Safety and Check Valves.....	65 %
Brass Jenkins' Gate Valves.....	50 %
Brass Steam Cocks.....	60 %
Brass Gas, Meter and Union Meter Cocks.....	60 %
Brass Fittings, Rough.....	60 %
Brass Fittings, Finished.....	25 %
Brass Bushings.....	60

Plumbers' Brass Work.

Ground Key Work, Rough.....	60 %
Ground Key Work, Finished	55 %
Compression Work.....	60@60&5 %
Compression Work, Grundy, Heavy Pattern.....	55 %
Chain Stays.....	60 %
Basin Plugs.....	60 %
Sink or Bath and Wash Tray Plugs.....	60 %
Basin Clamps.....	55 %

FRENCH GLASS.

Per Box 50 feet.

Sizes		Single. 1st.	2d.	3d.	4th.
		E F H	I E H	H H	H B
25	6 x 8 to 10 x 15.....	$10.50	$9.00	$8.50	$8.00
40	11 x 14 to 16 x 24	11.50	10.75	10.25	9.75
50	18 x 22 to 20 x 30.....	15.50	14.00	13.00	12.50
54	15 x 36 to 24 x 30.....	16.50	15.00	13.50	..
60	26 x 28 to 24 x 36.....	17.75	16.25	14.75	....
70	26 x 36 to 26 x 44.....	19.00	17.50	15.25	.....
80	26 x 46 to 20 x 50.....	21.00	19.50	17.00	....
84	30 x 52 to 30 x 54.....	22.00	20.25	18.00	.....
90	30 x 56 to 34 x 56.....	23.00	21.25	19.00	.....
94	34 x 58 to 34 x 60.....	24.00	22.75	21.00	....
100	36 x 60 to 40 x 60	26.50	24.50	23.00	...